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Answering Empirical Questions:

A Volume in Honor of Tore Nesset



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Answering Empirical Questions: A Volume in Honor of Tore Nesset

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Front cover: Uppsala University Library Carolina Rediviva with marching students in the foreground. Johan Way, 1842 (UUB)

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Editorial

Dear reader,

We are pleased to present this special issue of *SLOVO – Journal of Slavic Languages, Literatures and Culture*, Volume 66 (1) *"Answering Empirical Questions: A Volume in Honor of Tore Nesset"*, celebrating our colleague and friend Prof. Tore Nesset from UiT - The Arctic University of Norway. The current special issue was edited by Laura A. Janda from UiT and *Slovo*'s Anastasia Makarova. All research articles have undergone the peer-review process usual for *Slovo*, while the essays have been reviewed by the editors. We would like to thank Laura and Anastasia, as well as all the authors and reviewers for their work on the volume.

We are happy to see that so many colleagues from all over the world have contributed to this volume and would like to join them in wishing Tore all the very best for his 60th birthday.

This year, Olena Jansson from the University of Stockholm joined *Slovo*'s editorial team. Welcome, Olena!

We are also expecting a regular issue of *Slovo*, Volume 66 (2), which will be coming out in December-January. More information about aims, scope, as well as guidelines for contributors can always be found on our webpage, https://journals.uu.se/slovo/.

Maria Engström
Olena Jansson
Pontus Lindgren-Ciampi
Anastasia Makarova
Mattias Ågren



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“Well, that’s an empirical question”…

…is what someone is likely to hear him say anytime they ask a random question about Russian grammar, or indeed many other topics even in unrelated fields. In other words, the go-to strategy is to collect the evidence, analyze the data, and search for an answer. It’s an unbiased reply from the open and perpetually curious mind of a dedicated scientist. This volume is comprised of studies inspired by Tore Nesset’s approach to knowledge.

Tore Nesset shows what happens when the pursuits of a clever mind are undergirded by steady caring friendship. He shares a warm relationship equally with senior and junior scholars, as well as students, be they advanced or beginners, and even potential students that haven’t registered (but might yet be enticed to study Russian). The fruits of his combination of sharp intellect with genuine goodwill are reflected in this collection of articles, essays, and congratulations presented to Tore Nesset in celebration of his 60th birthday on October 15, 2026. While this volume springs from the academic tradition of the festschrift, it also reaches beyond the traditional bounds of that genre, much as Tore Nesset has himself expanded ordinary perimeters in many directions, in terms of scholarship, collegiality, and mentorship. And he has led by example, always putting more than his share of effort into every thesis, dissertation, co-authored article, or grant proposal. In addition to pushing the frontiers of scientific investigation in historical Slavic linguistics, the linguistics of Russian and other languages, and language pedagogy, Tore Nesset’s scholarship extends to related fields of culture and history. All these disciplines are amply represented in this volume. Tore Nesset has especially prioritized support of the next generation of scholars, many of whom have participated in this project. It is particularly fitting that this volume is bookended by personal tributes: opening with essays by Hans-Olav Enger and Henrik Syse on enduring camaraderie, which in our opinion do a better job introducing the honoree than any traditional description of his “life and work”, and closing with Geir Flikke’s translation from Russian to Norwegian of a poem by Lermontov to commemorate the honors that he and Tore Nesset received for their work as beginning students of Russian.

This volume is presented to thank and honor Tore Nesset for his achievements, both as a scholar and as a friend. Dear Tore, we treasure you and look forward to continuing our scientific and human relationships with you.

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“Det der har du fra han!”

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En medstudent på lingvistikk smilte litt av noe jeg nettopp hadde sagt, ytret den setningen som utgjør overskrifta, og nikket så vidt i retning Tore. Det var over matpakka på den gamle HF-kantina i 12. etasje av Niels Treschows hus; kan det ha vært i 1989? Eller var det seinere? Mye vann har rent ut i havet siden den gangen, og naturlig nok er det mye som er glemt, men ikke den replikken. Kanskje fordi hun smilte svært vennlig og rett og slett hadde rett (enda jeg så gjerne ville være en litt original ung mann!), kanskje fordi det har stemt for en god del ting – det der har jeg fra han. Den gangen gjaldt det bare en uttrykksmåte, men ofte har det vært mer, stundom mye mer, og i mellomtida har jeg forstått at jeg slett ikke er så original som jeg fablet om – og at mange har blitt påvirket av Tore, i mangt.

I et festskrift er det lov å fundere over hvorfor jubilanten har påvirket så mange, og etter 35 års kjennskap burde det være mulig å gi noen svar. En begynnelse er å spørre hvorfor det var akkurat Tore jeg ble venner med den gangen, og bortsett fra at vi begge var unge menn fra bygda, så er et kanskje litt kynisk svar at Tore var – og er – så flink. Det var mange svært lyse hoder blant de relativt få lingvistikkstudentene i det Herrens år 1989, men Tores var uten tvil av de lyseste. Og så hadde han gjort ting etter boka og begynt på lingvistikk da en skulle, dvs. i høstsemesteret (1988), et halvt år før meg, så det var en del jeg trengte forklaring på. Og da var Tore der, og så var han så god til å forklare, så det var mye å plukke opp fra akkurat den kanten. Jeg hadde blant annet nordisk mellomfag i bagasjen, men ingen hadde forklart postmodernisme så enkelt og greit som det Tore kunne gjøre i en pause. Ikke at Tore hadde så fælt mange av dem, der han satt på lesesalen fra før halv ni til etter halv seks … Noen har større arbeidskapasitet enn andre! Og mens litt for mange i akademia fremdeles overdriver betydningen av den store faglige begavelsen, er Tore en av dem som tydelig viser fram i praksis at begavelse er så mange ting. Når det gjelder utholdenhet på lesesalen, var han iallfall en illustrasjon på den svenske nordisten Lars-Gunnar Anderssons ord om at i tillegg til inspirasjon trengs «gott sittfläsk». (Ikke «godt sideflesk», som Andersson en gang ble gjengitt på.)

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Utholdenhet henger sammen med tålmodighet, og Tore er en tålmodig mann. Han har hørt tålmodig på klagesanger fra min kant, og etter det jeg kan skjønne, har han hatt høy «onkelfaktor» som veileder – mer enn en av de gamle kandidatene hans lyser opp, bare de forstår at jeg kjenner Tore! I de tilfellene der vi to har stått i noenlunde samme relasjon til personer, har det fascinert meg hvor mye mer de kan ha fortalt til han enn til meg. Det forteller nok mest om Tore.

Det er også en ro over jubilanten som han kanskje har med seg fra generasjoner av østerdøler som har hatt verre ting å stri med enn surmagede konsulenter (for eksempel «den lille istid», «storofsen», matmangel og den evige engstelsen for vinteren). Men at Tore er vanskelig å vippe av pinnen, henger nok ikke bare sammen med nøkterne forventninger, ro og tålmodighet, men også med at han – bakom all roen og sindigheta – er så rask i hodet. I årenes løp har jeg holdt ikke så reint få innlegg sammen med Tore – fra Åbo i november 1996 til Berlin i september 2025 – og det er trygt å møte spørsmålsrunden i lag med en som støtt har et godt svar, også på det for meg helt uventede. Og der hvor vi ikke hadde et godt svar, der kunne Tore likevel si noe som både var fornuftig, rimelig og avvæpnende.

En skal ikke bortforklare mennesker som et produkt av genetikk, men likevel: For meg står Tore som ei vellykket blanding av – på farssida – rolige østerdøler som ikke lot seg vippe av pinnen uten videre, og – på morssida – urbant byborgerskap, som visste å komme andre i møte et stykke på vegen. Tore er en dannet mann; på hybelen i Storkenebbveien tidlig på 1990-tallet kunne han finne fram både bratsjen og tysk lyrikk; han kunne snakke om komponister jeg knapt hadde hørt om – det var i grunnen de fleste – og forfattere vi begge hadde lest, fra Sigurd Hoel («det er litt tenkt!») til Olav H. Hauge og Kjell Aukrust.

Vi studerte begge under (interessant preposisjonsbruk her, for den som er kognitiv lingvist!) Arnfinn Vonen, Harald Bjorvand og Rolf Theil Endresen. Begge hadde vi Rolf som en av to veiledere på hovedfagsoppgavene, og seinere var vi begge stipendiater med Rolf som den ene veilederen. Jeg kan ikke huske når Tore begynte, men jeg begynte iallfall sommeren 1993. Vi var blant dem som en gang ble omtalt som «hybridene til Rolf» (sammen med blant andre Helge Gundersen, Marit Lobben og avdøde Mona Markussen), og som altså forente allmennlingvistikken og særspråklige studier. Eller var det sære, språklige studier?

Allerede som student hadde iallfall Tore evnen til å forene mer eller mindre sære språklige detaljer med de store teoriene og med vitenskapsfilosofi. Han kunne se det metodiske problemet ved et resonnement – hvem i all verden hadde tenkt på språkvitenskapelig metode den gangen? (Utenom sosiolingvister, da… Men vi var jo ikke det.) Og han kunne si sånt som at definisjoner ved opplisting av eksempler, det gav ikke filosofene mye for! Sjøl om han nok formulerte det vesentlig mer diplomatisk. Eller han kunne se teoretiske implikasjoner på en måte vi andre ikke helt kunne.

Faktisk husker jeg en medstudent som sukket litt over meta-resonnementene til Tore – hen syntes vel det ble litt lite konkret språk – og at jeg måtte si at jeg nok hadde sansen for dem. I dag er jeg faktisk litt usikker på om jubilanten sjøl hadde hatt like stor sans for dem. I den amerikanske TV-serien *Six Feet Under* sier en av rollefigurene noe sånt som at «People don't change. They just get older.» Det stemmer for mange, og slik jeg husker Tore fra langt tilbake, har han endret seg lite. Heldigvis! Men på ett punkt er forandringa tydelig: Fascinasjonen for teori har avtatt noe, til fordel for enda større interesse for empiri, for hvordan språk er. Og det er mye igjen å finne ut av på det punktet.

Tore er intellektuelt åpen. Mens vi var stipendiater, var jeg mange ganger fristet til bare å avvise innspill fra språkvitere som ikke helt hadde den rette troen; men Tore tok seg tid og vurderte innspillene. Og ofte fant han noe godt i dem. En gammal tanke er at det er noe godt i alle, og Tore arbeidet ut fra den premissen. Derfor taklet han også det å komme til et språkvitenskapelig miljø i Tromsø som på 1990-tallet ikke nettopp var dominert av kognitiv lingvistikk. Omgjengelighet og respekt er ikke dumt – særlig ikke i kombinasjon med talent, intellektuell åpenhet og arbeidsomhet.

Som stipendiater og ei stund etterpå leste vi ofte hverandres utkast. Tore er pedagog, og opptil flere av kommentarene hans til mine manuskripter har jeg tatt med meg seinere – som den om at «Jeg synes du skal overlate til andre å skyte deg i foten!» Merknaden låter kanskje brutal, men den var definitivt på sin plass der den kom. Den var et uttrykk for redelighet og omtanke, og det er ikke uten grunn at Tore har blitt meritert underviser; han er som sagt en god pedagog, og han har lært meg mye om det å lage en tekst.

Det var lettere å holde kontakten så lenge vi studerte det samme og bodde på hver vår hybel med 1500 meter imellom oss, enn det er i dag, når vi jobber med forskjellige ting – med mer enn 1500 kilometer imellom. Men «det livet, det livet» er et av flere av Tores uttrykk som iblant dukker opp på tunga mi. Sannelig er vi ikke i skrivende stund (november 2025) i gang med nok et fellesprosjekt. Det er ikke jeg som har alle disse ideene, men jeg er gjerne med på turen. Også denne gangen veit jeg nemlig at det blir moro så lenge det varer.

Essay

Korporal Nesset

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Det er mandag 7. juli 1986, på Heistadmoen, nærmere bestemt BSIS: Befalsskolen for Infanteriet i Sør-Norge. Et titalls håpefulle ungdommer, de fleste av dem 19 eller 20 år, håper å komme inn på Det militære språkkurs i russisk, på folkemunne kjent som Russiskkurset. Ja, folkemunne er kanskje å ta hardt i, men faktisk er skolen kjent også utenfor Forvarets murer, og da ikke for å ha fostret militære avhørseksperter og gode russiskfilologer, men fordi en rekke samfunnstopper har gjennomført sin førstegangstjeneste her: Lars Roar Langslet, Francis Sejersted, Johan Jørgen Holst, Einar Førde, Per Egil Hegge, Bjørn Bue – listen er etter hvert lang i kursets over 30-årige historie.

Kurset er ikke bare språkkurs, det er også befalsutdannelse. Dermed oppstår det et inntaksdilemma for lærerne, offiserene og psykologene på Heistadmoen: Hva med dem som har tykke brilleglass og løper keitete og langsomt? Hva med dem som nok kan bøye våpen-substantiver og tilhørende verb i entall og flertall, fortid og nåtid, men ikke fatter interesse for bak og frem på de samme våpnene? Her skal gutta – og nå også noen jenter – gjennom nesten tre måneder med hardkjør og helvetesuke, men målet er dypest sett å finne dem som med intellektuell eksellense kan tilbringe dagevis, ukevis og månedsvis med bøker og pugging. Hvem skal velges?

Senere kjente fjes som oljefondssjef Nicolai Tangen og regjeringsadvokat Fredrik Sejersted er blant dem som kommer gjennom nåløyet i disse julidagene. Men deres briljans til tross: blant kandidatene som blir tatt opp som menige aspiranter og deretter korporaler, er det noen som klart overgår Tangen og Sejersted i respekten for og kunnskapen om filologiens dype kompleksitet og hemmeligheter. Blant dem er ikke minst den stødige tynsetingen Tore Nesset. Det norske forsvaret har sikkert hatt en og annen dyktigere AG3-skytter enn aspirant Nesset. Men i forståelsen av språklæringens nyanser har Forsvaret funnet en uovertruffen kandidat. Han balanserer alle de hensyn som inntakskomiteen for kurset må ta.

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Jeg hadde selv gleden av å være del av dette kullet, kjent som Russiskkurs nr. 18. Min egen språklige briljans var moderat, og jeg seilte gjennom som en gjennomsnittskursant. (Ja, russisk-elevene i Forsvaret benevnes som kursanter – et godt russisk ord.) Så kan man kanskje smykke seg med at gjennomsnittet blant en gjeng skolelys ikke er så verst. Men jeg kan love at jeg slet – og mange med meg. Slitet ble både lysere, lettere, morsommere og mer spennende gjennom samvær og etter hvert nært vennskap med nettopp korporal Nesset, en alltid vennlig, oppofrende og underfundig tilstedeværelse som i etterkant ble én av dem fra kurs 18 som har viet seg til nettopp det russiske språk.

Det er verdt å dvele ved denne tid i professor Nessets liv, for dette var en dramatisk og samtidig håpefull brytningstid. Glasnost' og perestrojka, generalsekretær Mikhail Gorbatsjovs benevnelser på den åpning og omdannelse som han mente det tilstivnede Sovjetsamfunnet måtte gjennom, befestet seg for alvor gjennom nettopp 1986 og 1987, de to årene da først Heistadmoen og så Lutvann leir i Oslo ble unge Tore Nessets tilholdssted. Det totalitære samfunn, som våre lektorer Børresen, Seland og Kottum på hvert sitt vis kunne fortelle redselshistorier fra, var under omdannelse. Samtidig var vi utdannet til å forsvare oss mot dette imperium i øst. Vi lo godt da en skobørste ble presentert som hjelp mot atomnedfall etter et angrep med kjernevåpen. «Atombørsten», ble den kalt. Bak børsten lå det største alvor: Vi ble utdannet for å være klare til både tolkeoppgaver, avhørstjeneste og væpnet forsvar dersom krigen kom. Den krigen kunne inneholde de verste våpen mennesket har funnet opp.

Hva skulle vi så tenke om vårt store naboland i øst, Sovjetunionen? Fiende eller (i hvert fall gradvis) venn? Bare Russland eller et langt større mangfold? Kulturell bakevje eller den beste kulturs høyborg? Ambivalensen var både dyp og reell.

Med 40 års avstand, idet både Tore og jeg runder de 60 og kurset er blitt over 70, tenker jeg at den ambivalensen som preget hele den politiske konteksten vi befant oss i, kommer oss til gode i dag. Som både fremtredende filolog og et dypt politisk engasjert menneske er Tore Nessets forhold til russisken farget av denne tvetydigheten: stor respekt for og kjærlighet til språk og kultur, bevissthet om mangfoldet, kunnskap om de dype og krigerske tragediene – og et seiglivet håp om endring. Stilt overfor Vladimir Putins meningsløse krig og et Russland som trekker seg unna vesten og dels utnytter, dels truer og dels fjerner seg fra sine gamle forbundsfeller og medrepublikker, vet vi at det russiske er så mye mer enn det redselsfullt brutale – samtidig som det tragisk nok også er det redselsfullt brutale. Vi kjenner og beundrer russiske forskere og kolleger med de beste hensikter og de høyeste visjoner og ambisjoner – og vi kjenner den jernhæl som holder dem nede. Vi kjenner de muligheter som ligger i den russiske historie og den russiske skaperevne – og vi kjenner den ensretting og selvgodhet som kan knuse de samme mulighetene.

Ikke minst kjenner vi fra 1980-tallet den brytningstid som gjorde oss åpne for at det som tilsynelatende alltid har vært, faktisk kan endres. Verken korporal – senere sersjant

og fenrik – Nesset, eller ditto Syse, ble de muskelbuntene av noen soldater som befalet på Heistadmoen kanskje håpet å gjøre av oss. Men vi tok da både marsj- og skyttermerkene som krevdes, og vi ble – enda viktigere – bevisste rundt hva vi forsvarer, og hva vi ønsker og håper kan virkeliggjøres: et Europa og en verden der de verdier som et fredelig samfunn så inderlig trenger, kan deles på tvers av språk-, lande- og kulturgrenser.

Vi håper – Мы надеемся – 40 år etter russiskkurs nr. 18.

Peer-reviewed article

The First Slavs in the Russian Northwest and the Second Velar Palatalization

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Abstract

This birthday greeting for Tore Nesset examines the evidence for the Second Velar Palatalization (VP2) in the medieval Pskov–Novgorod area. It is assumed that this matter is sufficiently interesting to justify an approach that does not try to explain the 'missing sound change' in isolation. Hence it is viewed first in the perspective of velar palatalizations in general; then in relation to other notable grammatical features of these dialects; and finally in the light of the reconstructed social context in which this phonological change occurred. The exposition leaves aside the debates about individual issues in order to create a coherent account that is consistent with changes in other languages.

1. Introduction

It has been said that the greatest discovery in twentieth-century Slavic linguistics was the absence of the Second Velar Palatalization (VP2) in the Russian Northwest.[1]

Scholars had long noted the complete lack of VP2a reflexes in inflection in northern dialects, in stark contrast to their consistent use in medieval texts. But this was really not surprising: Alternations in inflection tend to be leveled, and VP2a reflexes were in evidence at the beginning of words. Lexemes like *cena*, *celyj*, *cerkov'* showed the diachronically expected initial.

[1] The second palatalization (VP2) affected velars in three environments, a, b, and c; see (1abc). This paper deals with them all, but the relationship between VP2ab and VP2c—by some thought of as the third palatalization (VP3)—plays a special role. On the controversies surrounding these changes, see Vermeer (2003); Nesset (2015: 238).

But then in 1964, at a conference on Pskov area dialects, Sof'ja Mendelevna Gluskina presented lexical evidence from folk dialects that could only be interpreted one way: Localisms that were limited to oral usage showed no evidence of VP2a even in initial position; see (1ab). Some lexemes in these dialects that had initial /c/, like corresponding standard Russian forms, were easily interpreted as adoptions from general Russian usage (1a) (Gluskina 1966, 1968).

Gluskina's data and her rational interpretation were immediately convincing, though they did meet with some resistance (Popov 2023: 919). A few years later, similar examples of unchanged initial velars in the VP2ab environments came to light in Novgorod birchbark texts, the earliest from the 1000s (Zaliznjak 1982; 2004: 41). There could be no doubt: The dialects of Pskov and Novgorod originally had no evidence of the regressive palatalization of velars before the reflexes of PPS /ai/ (VP2a) or PPS /w/ followed by front vowel (VP2b). The progressive palatalization (VP2c) was well attested but limited: It apparently affected /k/ but not /g/ and /x/. As for /g/, only a single lexeme is certain, two other lexemes are with the VP2c reflex; but it is likely they were not native to these dialects (1c).[2]

(1) a. VP2a. • Pskov dial. *k'ep*, *kepók*, *k'ep'éc* || Russ. *cep* 'flail', Pol. *cepy* (PPS kaipa-). • Pskov dial. *k'évka*, *k'evcá*, *k'evína*, *k'évočka* || Russ. *cevka* 'bobbin', Pol. *cewa* (PPS kaiwi-). • Pskov dial. *k'ed'it'*, *k'ed'ílka*, *k'éž* || Russ. *cedit´* 'strain', Pol. *cedzić* (PPS kaidī-).
Birchbark texts: кѣле || Russ. *celyj* 'whole', P *cały* (PPS kaila-). • хѣрь 'undyed woollen cloth' || Russ. *seryj* 'gray', Pol. *szary* (PPS xaira-, xairi-).

b. VP2b: • Pskov dial. *kv'et*, *kv'et'ét'*, P *kwiat* || Russ. *cvet* 'bloom', Ukr. *kvit*, *cvit* (PPS kwaita-). • Pskov dial. *kv'elit'* 'tease' || ORuss. *cvěliti* 'torment' (PPS kwailī-).
• Nw.-Russ. dial. *gvirsta* 'gravel' || Russ. *dresva*, Pol. *drząstwo*. • Nw.-Russ. dial. *gv'ezda* 'star', Pol. *gwiazda* || Russ. *zvezda*, OCS *zvězda* (PPS gwaizdā-).

c. VP2c: PPS /k/, • Nw.-Russ.: *ot'ec*, *jajco*, *ovca, kur'ica*, *dv'erca* 'father, egg, sheep, chicken, door dim.'(PPS -ika-, -īkā-). Birchbark texts: отьць 'father', вѣвериць 'squirrels', мѣсѧць 'month'.
• PPS /g/, Birchbark texts: не лего (for льго) 'forbidden'; кнѧзь 'prince' (PPS kuninga-), оусерѧзи 'earrings' (PPS auseringa-, Gmc. *ausi-hringa-).
• PPS /x/, Russ. *ves´*, *vse*. Birchbark texts: e.g., вхоу, къ вхем <-ěmъ>, вохе <vъхе>, вохо <vъхо>, вхого, со вхим[и], на вхыхъ 'whole, all' (PPS wixa-).

[2] Notational conventions. Cited wordforms are in italics. Proto-Slavic (PS) forms are based on comparative reconstruction; they are asterisked and in italics. Pre-Proto-Slavic (PPS) forms are based on internal reconstruction of Proto-Slavic wordforms; they are in normal font and labeled PPS. Proto-Slavic forms reflect a prehistoric stage close to Old Church Slavonic, Pre-Proto-Slavic forms, a stage before the First Velar Palatalization. In the text, Cyrillics are rendered in transliteration with the exception of wordforms cited from the birchbark corpus.

In the pages that follow we will look at this remarkable detail in the history of Russian from several points of view: First in comparison with other velar palatalizations (§2), then in relation to other peculiarities of the traditional Pskov-Novgorod dialects (§3). After a brief look at some rudimentary information on the likely social context in which VP2 occurred (§4) a new interpretation of the missing evidence for VP2 will be presented. The conclusion (§5) states some of the methodological choices implicit in the analysis and interpretation.

2. On velar palatalizations

In any attempt to interpret a sound change it is useful to know that distinctive elements (segments or features) arise through reanalysis of allophonic variants, and allophones are created by reanalysis of mere phonetic fluctuation ('free variation'); the fluctuation is typically fine-grained and—until it becomes regularly conditioned—below the level of speakers' attention, let alone interest. Allophones are established gradually. In the case of velar palatalization, phonetician dialectologists record degrees of sharping[3] (e.g., [k′ k″]) leading to the potentially distinctive (IPA) [kʲ, gʲ, xʲ]. Besides the articulatory gradualness, the development of sharping is also gradual among the members of the class of velars, and across their phonological and morphotactic environments.

The gradualness in these contexts is observable (cf. Timberlake 1978ab), but it can also be inferred in diachronic change. This happens when a gradual allophonic development is cut short by a phonological reanalysis that captures only part of the full range of (possible) allophones. Here follow some examples from three dimensions of gradualness, concurrent features, contiguous features, and morphotactics.

2.1 Concurrent segmental features

1. Among velar obstruents, plosives are sharped earlier than non-plosives, for /k/, /g/ are produced with velar contact, /x/ is not; the tense (voiceless) /k/ is sharped earlier than the lax (voiced) /g/, for /k/ has a larger and longer velar contact than /g/. (i) Hence /k/ > /g/ > /x/ is the gradation reflected in VP2c: When [kʲ] was reanalysed as /kʲ/, /g/ and /x/ were not yet so strongly or consistently sharped that they could be reanalysed. (ii) Similarly, the Polish Fourth Velar Palatalization (VP4) resulted in /kʲ gʲ/ vs. /x/ before /i/: nom.sg.m *cienki* 'thin', *ubogi* 'poor' vs. *suchy* 'dry'; and before /e/: nom.sg.n *cienkie*, *ubogie* vs. *suche*. (iii) In East Slavic, the regressive VP4 affected all the velars in the entire Russian language area; e.g., ORuss. *ky*, *gy*, *xy* with [kʲ, gʲ, xʲ] in

[3] In velars, sharping (in musical notation: ♯) is the raised pitch of a plosive or fricative that results when its point of articulation (area of contact) is advanced toward the palate. Additional fronting produces dorso-palatal plosives IPA [c ɟ]; a slow release of these results in assibilated alveo-palatal [tɕ dʑ].

Russ. st. *kislyj* ‘sour’, *gibkij* ‘flexible’, *xitryj* ‘sly’; similarly *kě*, *gě*, *xě* in Russ. st. *ruke* ‘hand’, *noge* ‘foot’, *strexe* ‘eaves’. But the progressive part of VP4 is limited to the plosives, /k/ in the southeast and /k/, /g/ in the north (e.g., dial. *l’ul’k’a* ‘cradle’, *mal’en’k’aj* ‘small’, *dočˈk’a* ‘daughter’, *Olˈg’a*), whereas /x/ and the southern fricative /ɣ/ did not become sharped (e.g., *Olˈya*; Kasatkin 1999: 92; Avanesov & Orlova 1964: 74; Orlova et al. 1970: 54, map 4).

2.2 Contiguous segmental context

1. Sharped allophones develop earlier directly preceding a front vowel than when separated from a front vowel by another segment. This is exemplified by VP1 and by the characteristic West Slavic VP2a and no VP2b (e.g., Pol. *caly* ’whole’ vs. *kwiat* ‘flower’, *kwielić* ‘whimper’; contrast R *celyj*, *cvet*; recall that VP2b applied before all front vowels; cf. (1).

2. Sharped allophones develop earlier contiguous to higher than to lower front vowels; this is illustrated by the progressive VP2c.

3. Sharped allophones develop earlier preceding than following a front vowel; this is exemplified by the regressive VP1 vs. the regressive and progressive VP2ac. Similarly in Russian: VP4 before front vowels occurred throughout the language area, but sharped velars after sharped (fronted) consonants arose only in limited northern and southeastern areas.

4. In progressive palatalization there may be additional conditioning of intersyllabic velars. Note that VP2c was barred before a high back vowel (ORuss. *kъnjazь* ‘prince’vs. *kъnjagynja* ‘princess’, PPS kuninga- vs. kuningūnjā-)

2.3 The morphotactic context

Sharped allophones develop earlier in uniform environments than in alternating environments. Thus Polish dialects with incomplete VP4 had word-initial sharped [kʲ] but plain [k] before desinential or mobile /e/, e.g., dial. *kiedy*, but *bokem*, *łokeć* for standard *kiedy* ‘when’, *bokiem*.ins.sg ‘side’, *łokieć* ‘elbow’ (Timberlake 1978b). The same contrast can be seen in VP2a: Contrast the outcomes both word-initially and stem finally in Ukrainian (*cina* ‘price’, *ruci*.dat.sg ‘hand’) vs. Russian (*cena*, *ruke*), where VP2a allophones were reanalysed and assibilated word-initially but not reanalysed stem-finally.

A little knowledge of how velar palatalizations develop—the allophonic changes that precede reanalysis and the systematic relations of implication expressed in the several dimensions of gradualness—gives us a more nuanced view of the Pskov–Novgorod data. True enough, the absence of VP2ab reflexes in the lexical data is a real deviation from the normal situation. It is obviously compatible with the conclusion

that there was no VP2ab (though to be really sure, we would want to find a convincing explanation for its absence).

On the other hand, the fact that progressive palatalization is regularly secondary to a regressive palatalization should make us wonder if the attestation of VP2c in Pskov–Novgorod might count as circumstantial evidence, an indication that actually there was also at least a VP2a.

Maybe our question should not be Why was there no VP2a, but Why don't we have any evidence of it? The matter clearly deserves a second look.

3. Some morphological details

The attestation of the 'Old Novgorod' dialect in the birchbark corpus shows us a dialect of medieval Russian with several peculiar deviations from regular Old Russian morphology. Perhaps some of these can help shed light on the 'missing VP2ab'.

Nom.sg of o-declension nouns, short adjectives, and participles, including l-forms, is *-е* (-е); e.g., *брате* 'brother', *вънуке* 'grandson', *кѣле* 'whole', *дале* 'gave'. In definite adjectives the ending is (*-*e*=*j*-*ь* >) *-еі* (-еи). The nom.sg *-е* is well attested throughout the birchbark corpus.

Nom.sg *-е* has attracted a great deal of interest (Zaliznjak 2004: 99; Igartua 2005:105; Olander 2015: 104; To appear). The simplest account posits a change of PPS -as > -ə (Zaliznjak 1988: 170; Olander 2012:330). Nom.sg *-е* did not condition stem-final VP1 reflexes; this suggests it was established after VP1. The inherited *-е*.voc.sg ending, which did condition stem-final VP1 reflexes is barely attested in the birchbark corpus (Zaliznjak 2004: 145).

The gen.sg of a-declension nouns is *-ě* (-ѣ); contrast ORuss. *-у/-ě*, OCS *-у/-ę*. Until the 1300s, gen.sg *-ě* is usual, the regular ORuss. *-у* is occasional (Zaliznjak 2004: 97). The reconstruction of the general Slavic desinence allomorphs seems to call for combinations of phonological and analogical changes; but the Nw-Russ. *-ě* may be the outcome of a phonological change parallel to the nom.sg *-е*: PPS -ās >-ə̄ > *-ě*). (Igartua 2005: 199; Olander 2015: 130; To appear).

Loc-dat.sg of a-declension nouns is *-ě* (-ѣ); contrast ORuss., OCS *-ě/-і* (Zaliznjak 2004: 97).

Nom-acc.pl. of a-declension nouns. In the earliest texts, *-ě* predominates and the regular OR *-у* is uncommon. The nom.pl of o-declension nouns is first attested as *-і*, from the 1100s also *-у*; from the 1300s *-ě*; thus also in l-participles. Nouns in *-ане* > *-анě*. Acc.pl of o-declension nouns is *-у*, from the 1100s also *-ě* (Zaliznjak 2004: 98).

Pres.3. Zero ~ *-тъ* vs ORuss. *-тъ*. The latter gains in frequency from the 1300s, but the original semantically conditioned pres.3 distinction survives into some modern northwestern dialects: *-тъ* appears neutral, but it is frequently omitted in conditional and purpose clauses (Zaliznjak 2004: 135 with references).

These morphological features suggest the early Pskov-Novgorod dialect's origin as a variety of Common Slavic that developed in relative isolation from the mainstream. This may have happened in its modern location or somewhere else prior to its speakers' settling there. Three details stand out.

First the nom.sg.masc *-e*. If this was the outcome of a phonological change subsequent to VP1, it was originally a minor feature, a variant of the majority ending *-ъ*. But it defined the dialect as distinct from all other known varieties of Common Slavic.

Secondly, the a-declension forms. If Zaliznjak's etymology of the gen.sg. *-ě* is valid, the resulting lack of allomorphy in gen.sg may have motivated the leveling of the loc-dat.sg. allomorphy (*-ě/-i* > *-ě*). This minor morphophonemic simplification resulted in a parallel syncretism between a-declension and i-declension unique in East Slavic.

Thirdly, the zero third-person markers. East Slavic dialects present a variety of patterns of *-0/-t* distribution conditioned by conjugation class, number, and stress placement. They look like compromises between the invariant *-t* of some dialects (and standard Russian) and the consistent zero typical of West and South Slavic. But the Northwest dialects put them in a different light; their semantic distinction may be an archaism from Indo-European times.

The morphological features are instructive. The nom.sg *-e* seems to reflect a time after VP1. But the third-person desinences take us back to a distant stage of Common Slavic. It makes us wonder where these Slavs could have come from. It invites us to consider the social context in which our VP2 occurred; perhaps this will help us get a better grip on the matter.

4. The social context

For the social context of the VP2 change we turn to the Velikaja River basin and evidence of its early settlement. Our information comes mainly from two disciplines, archaeology and linguistics.

The chief archaeological evidence is the long barrows (R *kurgany*), a remarkable feature of the Pskov countryside (Sedov 1994: 296-304; 2002: 348-372; 2005: 117-128). The urns deposited in the barrows are heterogeneous and give evidence of diverse funeral customs, Finnic, Baltic, most conspicuously some Jatvingian stone-covered urns, and Slavic. They reflect a population that for a long time comprised several cultural groups.

The collateral finds include B-shaped, riffled belt buckles. The archaeologists ascribe these to Slavs because of their distribution in northern Europe, south of the Baltic Sea. They were fashionable around 500 CE; their popularity and their date are confirmed by the tokens that have been found in southern England, presumably

brought there by migrating Angles and Saxons in the 450s-500s. Other artifacts reflect a simple slash-and-burn agriculture.

Three sorts of linguistic evidence are available. First, there are several names of streams in the Northwest that repeat hydronyms in the Nëman/Nemunas basin, unmistakable evidence of the presence of East-Baltic settlers (Ageeva 1974).

Secondly, there are Slavic loanwords in Finnish, Karelian, and Vepsian. They have been known since the early twentieth century, but they present a paradox that was first noted by Bjørnflaten (2006): Although there is plenty of evidence that the Slavs spread gradually from south to north across the Dnieper river system (Sedov 1981), the most archaic of all the Slavic loanwords in the neighboring languages are the northernmost, Finnic ones.

They reflect the vocalism of Pre-Proto-Slavic, /i u e a/ and its oral, nasal, and liquid diphthongs, and a few attest to the VP1 (Kallio 2006). By their archaic phonology they invite the inference that the Northwest was settled by Slavs that followed a migration route west of the Dnieper River system, across the Nëman/Nemunas valley, up through the Lithuanian hill country to the Daugava/Western Dvina valley and into the Velikaja basin.

To the Finnic groups that adopted this vocabulary the settlers became known as *venäjä*, now 'Russian' (OFi. *venädä*, PPS *weneda-*, PS **Venedi*) (Xaburgaev 1980:103). The Venedi were an ethnic group, probably originally Celtic (Gvozdanović 2009). They were well known to ancient geographers (Plinius, Tacitus); they were identified as Slavs and figured prominently in Jordanes' *History of the Goths* (500s) and the *Fredegar Chronicle* (600s) (Gindin et al. 1991; Ivanov et al. 1995). Their western, Germanic contacts used their name, Gm. *Wenden* (var. *Winden*), for all the Slavs. Like many other ethnic groups that adopted Slavic speech and ways (e.g., Antes, Avars, Dudlebi), some time after their integration the Venedi gave up their ethnonym.

The Slavicized Venedi played a central role in the development of the iron industry in Poland in the early centuries CE and in the geographical dissemination of iron making among the northern Slavs. There is linguistic evidence that suggests they brought iron making to the Northwest. The most striking is perhaps the word for 'blacksmith' (PS **kuznьcь* 'artisan'). As a lexeme, this is now general Russian. But the 550 placenames derived from it (*Kuznec*, *Kuznecovo*, *Kuzneck*, and another 26 derivatives) are strictly North Russian, distributed from Pskov in the west to the Kirov region in the east, with particular density (ca. 170 placenames) in the earliest settled territories, Pskov and Old Novgorod.[4]

Taken together, these odds and ends of information indicate that around the middle of the first millennium the Pskov area was a destination for Slavic and Baltic settlers

[4] In Middle and Southern Russia, Belarus', and Ukraine, some 420 placenames are derived from PS **koval'ь* (e.g., *Kovali*, *Kovalevo*, *Kovaleviči*, *Koval'skoe* and 27 other derivatives), as are their counterparts in Poland. They imply two major propagation routes for iron-making in the early Middle Ages (Andersen: To appear).

from the south. Here they encountered a local Finnic population. Finns and Balts adopted Slavic speech, and in time their varied cultural patterns were integrated. At a later point, yet another process of integration occurred, perhaps following the northward expansion of the Kriviči, Slavicized Balts (Xaburgaev 1979) from south of the Western Dvina.

5. The Second Velar Palatalization

We can now piece together some understanding of the Common Slavic dialect that was brought to the Velikaja basin.

The fact that the Pskov dialect had the nom.sg in *-e* tells us a few things about its diachronic background.

It had gone through a shortening of three-mora diphthongs and had maximally bimoraic diphthongs, oral, nasal, and liquid (Bethin 1998: 28). It had begun the reduction and loss of coda obstruents, the next step in its metrical development (ibid. 38). In this process, vowels preceding final obstruents had reduced allophones, e.g., /a ā/ → [ə ə̄]; these were reanalysed as final /e ē/ when the conditioning, the final /s/, was lost. Perhaps there was also a tendency towards glide prothesis (ibid. 30).

Meanwhile, VP1 had occurred, and the reciprocal fronting of back vowels after /j/. In short, both of the Common Slavic typological constraints were established, the metrical (rising sonority) and the tonality agreement (intrasyllable harmony; ibid. 34); both were manifested in productive phonological alternations.

Once the constraints on syllable constituency had become manifest, the next phase in the metrical drift was the simplification of complex syllable nuclei: The monophthongization of oral dipthongs and nasal diphthongs. The new front vowels conditioned the beginning of regressive sharping of velars (VP2ab), and high front vowels, oral and nasal, conditioned the beginning progressive sharping (VP2c).

Here we must turn to the speakers of this medieval dialect, for they were responsible for what happened next. Since this community was multicultural, we can assume that it counted both first-language (L1) Slavic-speakers and—probably for a long time—people with other primary languages, for whom Slavic was an L2.

At some point the palatalization reached a stage with regressive velar fronting across the board and the beginning of progressive fronting after high vowels.

This perfectly orderly allophone distribution would be unremarkable to the L1 speakers who produced it. But L2 speakers would experience it very differently. For them the progressive sharping was more salient than the regressive; it stood out because it occurred before back vowels (/a/ and /ā/), with a clear alternation depending on the height of the back vowel. It could easily be interpreted as distinctive. L2 speakers' regressive sharping was perhaps not very different from the typical adjustment of velars to following front vowels in their primary languages.

In this way their L2 usage skewed the overall community usage, in effect putting a brake on the development of VP2ab and accelerating the VP2c. Both L1 and L2 speakers advanced the progressive sharping, and soon the most salient of the velars, /k/ [kʲ], was reanalysed as a variant of the VP1 affricate, the origin of the North Russian *cokan'e* and *čokan'e* types.

The allophonic variation of the regressive palatalization, blurred by the usage of the L2 speakers, was reduced to free variation.

Thus the allophones of the regressive VP2ab came and went, leaving no evidence.

It may seem paradoxical that sharping would be lost in precisely the environments where it was most clearly motivated. But this hypothetical event has parallels in historically attested languages. In Bulgarian and Ukrainian the Common Slavic sharping was lost in consonants preceding a front vowel while it remained distinctive elsewhere (Jakobson [1929] 1962:72); cf. ORuss. /i/: *šestь* 'six', *šesti*.gen vs. Ukr. *šist´*, *šesty*; /e/: Ukr. *kinec´* [kʲinecʲ] 'end', *kincja*.gen.sg [kʲinʲtsʲa] vs. *kincem*.ins.sg [kʲintsem]. In these languages it may have been distinctive sharping that was lost; but the socio-linguistic conditions were undoubtedly similar.

6. Conclusion

Surely, the Second Velar Palatalization has been the most troublesome Slavic sound change on record. To begin with, it was thought to be two changes, VP2 and VP3. It took a long time for scholars to agree on the detailed conditioning of 'VP3'. And then there was the problem of relative chronology: Which one was the real number 2?

Vaillant (1950: 49) thought one could settle that issue: Since their outcomes are identical there is no phonoiogical reason to separate the regressive and progressive parts of this VP. Andersen (1969:563) showed that there is no dialect-geographical basis for separating them: The isogloss for the lenition of VP2abc [ǵ] is intermediate between those for VP1 [ǵ] and PPS dj. Their concentric isoglosses reflect the relative chronology. But that was when the controversies over the relative chronology really heated up. Nesset (2015: 238) offers a brief and sane summary of this. Vermeer's (2003) account exposes all the embarrassing details.

Gluskina's and Zaliznjak's discoveries led some scholars to believe that finally the chronology issue had been resolved: VP3, which had affected all Common Slavic dialects must have preceded VP2, which hadn't.

All the controversy could have been avoided if our predecessors had had better methods to work with. This paper has drawn attention to some aspects of sound change that are relevant in any interpretation of phonological change.

One. Every change begins with the creation of synchronic variation. Its eventual outcome—our evidence of it—holds clues to the phonological context and relative chronology of its original gradual progression. Here: VP2abc reflects the vowel system

at the time, the simplifications of oral and nasal diphthongs; the intersyllabic environment of VP2c signals the innovated trochaic foot-structure reflected in the strong and weak jers of Havlík's rule (Bethin 1998: 277).

Two: Every change is a token of a type. To interpret it you need to examine it in comparison with other changes of the same type. Here: There was no reason to believe VP2c occurred without VP2ab. The question was not Why did it not occur? It was What happened to the evidence?

Three. Every change is compatible with synchronic typological constraints. Here: There was no reason to think that the Synharmony constraint had been temporarily suspended between VP1 and VP2c.

Four. The inflectional morphology may offer relevant information. Here: The variant nom.sg *-e* implies a relative chronology.

Five. The social context of a change may be essential to its interpretation, as here. This reminds us that the historical linguist is also a historian. In that role our task is not to interpret isolated data, but to construct as coherent a narrative as possible out of the available evidence. It can happen that some essential detail is unattested but can be posited. In such cases the coherence of the narrative and our familiarity with similar events elsewhere may lend plausibility to a hypothetical account of what happened to the missing evidence.

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Beyond Havlik's Law: a dataset for quantitative investigation

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Abstract

This article explores a methodology for large-scale quantitative study of the jer change as it is reflected in Contemporary Standard Russian (CSR) as represented by Russian Wiktionary. The aim is to find out what proportion of the modern forms can be accounted for by a pure unmodified application of Havlik's Law, so that exceptions can be more systematically identified and investigated. We

[1] Berdicevskis has been supported by Språkbanken – jointly funded by its 10 partner institutions and the Swedish Research Council (2025–2028; project id 2023-00161).

[2] The authors are listed in alphabetical order. This article would not be possible without Winslow's pre-existing project on using LCS reconstructions as phonological 'annotation', and he is responsible for all coding and conversion scripts, inflection tables as well as the vast bulk of the LCS reconstructions (with some assistance from Eckhoff). Eckhoff and Berdicevskis did all manual post-correction and matching of TOROT and CSR lemmas and all manual annotation. Eckhoff did the main bulk of the writing and most of the pilot study. The key scripts and datasets, as well as a full account of the reconstruction principles, can be found in the TROLLing Dataverse at https://doi.org/doi:10.18710/YACE1Z. The complete run of scripts and documentation can be found at https://github.com/hanneme/jer_project

employ a computerised inflectional morphology of Late Common Slavic (LCS) to generate the ancestors of CSR forms, as well as a forward-reconstruction algorithm that attempts to convert these into CSR, with a strict implementation of Havlik's Law. Where the forward-reconstructed forms do not match the Wiktionary forms, we manually annotate them for the potential causes of the missed match, including the ones most frequently invoked in the literature: "difficult" consonant clusters, analogy and Church Slavonic influence. We find that especially consonant clusters and Church Slavonic influence are prominent potential causes. Overall we find that Havlik's law holds in a large majority of cases. We also provide a small pilot study where we test some of the morphophonological rules proposed by Isačenko (1970) to demonstrate the methodology's potential.

In 2015 Tore Nesset and Aleksandrs Berdicevskis co-authored an abstract entitled "YERs are Yearning for Empirical Research: A corpus approach to diachronic phonology", where they proposed to do a large-scale corpus investigation of deviations from the jer change, i.e. cases where Havlik's Law does not come through and the deviation cannot be explained by occurrence in TЪRT or TRЪT groups. These deviations are usually ascribed to "difficult" clusters, analogical levelling and Church Slavonic influence. Nesset and Berdicevskis's ambition was, in particular, to formulate criteria of "difficulty", and to find ways of predicting whether analogical levelling is expected to take place, and if yes, which form will serve as its basis. Their methodological idea was to use Old East Slavonic lemmas from the TOROT treebank (Eckhoff and Berdicevskis 2015) as the point of departure due to TOROT's archaising lemmatisation policy where weak and strong jers were retained in all positions. The abstract never resulted in a published piece of work, but in this article, we pick up on this research idea and propose a related, but more robust methodology for historical corpus phonology that will allow researchers to identify, and thus allow systematic study of, all deviations from the regular jer-change rules across morphological paradigms. Our method relies on reconstructing Late Common Slavonic (LCS) lemmas, using them as a basis to generate reconstructed LCS morphological forms, and then forward-reconstructing Contemporary Standard Russian (CSR) forms. The predicted forms are then compared with actual CSR forms. The main contribution of this article is thus methodological, but it also includes an annotated dataset and a small pilot study on cluster avoidance and analogical change.

1. Introduction

It is well known that many modern forms do not match the expected outcome of Havlik's Law (Havlik 1889) and also cannot be explained by the presence of etymological TЪRT or TRЪT groups, and various generalisations have been proposed (see e.g. Galinskaja 2009: 92–94, Žuravlev 1977: 40–41). Some mismatches are believed to be caused by "difficult" consonant clusters that lead to vocalisation or cluster simplification, such as *дъска* 'board' yielding *доска* in CSR rather than expected *цка* (which is in fact found both in early texts and Russian dialects). Isačenko (1970) goes a long way towards formulating detailed morphophonological rules for these deviances. Other mismatches are put down to analogical levelling, which is clearly exemplified in OES *шьвьць*, *шьвьца* 'tailor, cobbler' yielding CSR *швец*, *шевца* rather than *швец*, *шевца*. Another considerable group of deviations is ascribed to Church Slavonic influence, most frequently invoked for vocalisation of weak jers in prefixes and adjective suffixes, such as *съгрѣшити* 'to sin' yielding CSR *согрешить* and *грьчьскыи* 'Greek' yielding *греческий* alongside the expected *гречский* (cf. *грецкий орех* 'walnut'). Isačenko (1970) tends to (over-)use this explanation when his morphophonological rules are violated. Overall, there is no clear consensus on whether these generalisations can be formulated as clear rules, and if so, how, and we believe a more systematic examination of all documented deviations is warranted.

In this paper we therefore propose a strict corpus-based methodology to study the jer change as it played out in the history of Russian, comparing forward-reconstructed expected CSR forms to actual CSR forms and discussing the main groups of discrepancies. Importantly, our forward reconstruction is formalized and performed automatically. A similar methodology (but with a broader focus) was used by Marr and Mortensen (2020) to analyze phonological changes from Latin to French. We take a goal-oriented approach, asking how a set of CSR lemmas and their inflected forms came to have the forms they have, given their known (and most closely matching) jer-containing etymon.

We recognise that our goal-oriented approach differs from a more traditional source-oriented approach, which is more common in historical phonology, namely to look for the best-fitting outcome of each etymon in all available sources in a particular linguistic community, including e.g. dialect documentation. Choosing CSR lemmas as found in modern dictionaries (and deemed by Berdicevskis as a native speaker not to be overly archaic) as our endpoint certainly has its drawbacks, such as the obviously normative and to some extent written-language-biased way this inventory came into being. However, forms from a modern dictionary is the closest we can get to a full description of the system. A large-scale study, where a large range of forms from different East Slavonic standard languages, dialects and earlier language stages were taken into account, would run into delimitation problems as well as severe lack of dialect and historical data. In any case tracking down the best outcomes in any relevant source is

well beyond the scope of this largely methodological experiment. Focusing on CSR allows us to extract full morphological paradigms for any lemma found in Russian Wiktionary. Thus we can avoid the potentially vicious circle of finding CSR matches by forward reconstruction alone, which would inevitably limit the number of deviant outcomes detected.

2. Method

We extracted lemmas from the TOROT Old East Slavonic and Middle Russian Treebank that *either* have a lookup form that contains a non-final jer, *or* has at least one form in the attested form inventory that contains a non-final jer,[3] with the following limitations:

> -We exclude all proper nouns, since they often have unclear etymology and/or are loans
> -We exclude all lemma forms that contain a whitespace (such as *не быти*, complex numerals)
> -We only check for jer-containing forms of verbs and common nouns, and limit them to indicative forms of verbs and genitive forms of common nouns. Words from other parts of speech were included on the basis of their lemma form only.

This produced a list of 5455 lemmas that fulfilled the criteria. Some of these lemmas are still not relevant for our purposes, for example, the noun *сестра* 'sister' is attested with the acc sg form *сьтру* (<**sestrǫ*), which is a Novgorodian spelling found in BBL 531. These lemmas were excluded later. We also excluded all complex numerals (beyond those with lemma forms with whitespace) since most have had highly idiosyncratic developments and/or were only lemmatised separately as a consequence of early Cyrillic numeral notation.

The next step was to establish modern Russian counterparts for each of the relevant lemmas, wherever such a counterpart exists. This was done semi-automatically, using the integrated Old East Slavonic and Middle Russian dictionary found at https://syntacticus.org/dictionary/syntacticus:20180920:orv. The dictionary was created by providing ca. 8000 of the lemmas in the TOROT Old East Slavonic and Middle Russian treebank with Russian and English glosses (Eckhoff and Berdicevskis 2016). The dictionary naturally focussed on finding the best meaning match, not the best etymological match. For our list of counterparts, we used Levenshtein distances to compare the OES lemmas with the Russian glosses, automatically selecting the gloss with the lowest Levenshtein distance from the OES lemma form. The list was then

[3] An advantage of this approach is that we are able to include a number of forms with non-etymological jers, such as gen sg *льда* 'ice' from *leda.

manually checked, corrections were made and missing Russian counterparts were supplied, if possible, for the 1800 most frequent OES lemmas from our original list. The matching was done according to the following principles: i) only one etymon per CSR lemma, ii) the matching is based on form, not semantics, iii) reflexive markers on verbs are ignored, since they are not included in the TOROT OES lemmatisaton.

This produced a list of 1513 modern CSR matches for OES etymon lemmas. The frequency criterion was chosen simply to limit the manual workload. It has some disadvantages, in particular the fact that many stems and derivational affixes are repeated on the list in various combinations, to the exclusion of less frequent stems and affixes that have potentially interesting jer features. It also includes a number of derivations from proper nouns (adjectives such as *твѣрьскыи*, nouns such as *хоросаньць*), which were excluded from the list in their underived form. Since our goal is to account for the modern language, it might have been better to choose lemmas based on CSR frequency, but we would still be limited to ones with OES ancestors attested in TOROT.

Every OES lemma was then matched to its reconstructed and inflection-class-marked LCS ancestor lemma, in a dataset originally created by Winslow for the purposes of annotating PROIEL/TOROT OCS texts with LCS reconstructed forms (see https://ocstexts.co.uk). The idea behind such reconstructions is to encode all the phonological information necessary to produce descendant forms, so a point after the Common Slavonic monophthongisation of diphthongs but just before the second and third velar palatalisations was chosen. Existing reconstructions had been created for TOROT OCS lemmas, so these were automatically matched to their OES counterparts by forward-reconstructing and converting to TOROT's OES lemma-orthography, though several hundred still had to be specifically reconstructed to cover all our target lemmas. A full description of the reconstruction conventions is beyond the scope of this article, but is included in the data repository. Of importance for this article is our decision to reconstruct LCS syllabic liquids as unitary phonemes /r̥ l̥ r̥ l̥/, rather than as biphonemic sequences of liquid + jer, as is often done, so OES *вълкъ* 'wolf' is reconstructed as *vl̥kъ rather than *vьlkъ. These sequences develop distinctly from other jer groups, and the extent to which their reflexes fall together with those of the jers is coincidental and varies dialectally across Slavic (cf. e.g. Bethin 1998: 69–75).

In most cases the matching of lemmas with LCS reconstructed lemmas was unproblematic. However, some lemmas had to be excluded because no plausible LCS reconstruction was possible.[4] These issues largely stem from the fact that the TOROT OES lemma inventory also contains lemmas from Middle Russian texts, some of which must clearly have been derived (and/or borrowed) later than LCS. An example is the

[4] The lemmas in question were *хрьстиянинъ*, *хрьстияньскыи*, *батюшька*, *тюрьма*, *миленькыи*, *приказьщикъ*, *хорошенько*, *матушька*, *овьсяныи*, *бѣлозерьць*, *отъсюда*, *хрьстити*, *бѣлозерьскыи*, *обезияна*, *хрьстияньство*, *сибирьскыи*, *кърмьщикъ*, *дъмъра*, *лямъка*, *помаленьку*, *багъряныи*, *тряпезьница*, *псалътыря*, *полъть*, *дрьгъвичи*, *метельникъ*.

OES lemma *батюшька*, which only occurs in the Life of Avvakum and 18th-century Muscovite correspondence in the TOROT treebank. It is derived from LCS *batę with the suffixes *их* + *ька*. However, it can only have been derived after the rise of phonemically palatalised /t'/, which is a post-LCS development. In such cases the lemma was removed from the list. Lemmas that were unlikely to have existed in LCS (e.g. derivations from stems that are likely to be post-LCS loans), but are phonotactically feasible for LCS, were not excluded, for example the Kipchak Turkic loans *деньга* 'coin', cf. Kazakh *теңге*, and *тамъга* 'seal, mark', cf. Kazakh *таңба*. Clearly these did not exist in LCS, but the derived adjectives *денежный* (<**деньžьпъјь*) and *таможный* (<**тамъžьпъјь*) suggest that their closed syllables were adapted to pre-jer-shift OES phonotactics by jer-insertion. This left us with 1464 OES lemmas with LCS reconstructed counterparts.

Full paradigms of each LCS lemma are produced using tables containing inflectional endings associated with each lemma's inflection class.[5] These tables were originally created to produce the reconstructed LCS forms of words in the TOROT OCS texts found at https://ocstexts.co.uk, and they cope with post-LCS morphological restructuring by including alternative tables on top of the base idealised LCS one. The morphological innovations occurring in canonical OCS texts are different and far less extensive than those responsible for the modern Russian paradigms, so the alternative tables were specially adapted for this project.

Table 1 gives an example of the reconstructed LCS paradigm for the lemma *дъчи/дъщи* 'daughter'.[6] This noun is etymologically a consonant stem (specifically we use the classification-label *fem_R*, used also for *мати* 'mother'), but even in the very earliest sources it is attested with ĭ-stem endings. The alternative tables therefore contain regular LCS ĭ-stem forms (e.g. gen/loc sg, gen/loc du, nom, gen, voc pl), as well as the short nom/acc sg LCS form *dъ̀ ̀ь to be able to produce the later shortened form *дочь*, which is not observed in the TOROT data until the 16th century. For both this type and for regular ĭ-stems we also produced alternative ja-stem forms in the dat, ins and loc pl, to account for the modern forms in *-ям*, *-ями*, *-ях*.

[5] The inflection routine is more sophisticated than simply adding endings to stems; the guts of how it works can be seen in LcsFlecterJerProj.cpp

[6] The Old East Slavonic lemmas in TOROT often come as doublets of one Eastern and one Southern form. This is because Church Slavonic forms frequently occur in early East Slavonic texts: in the Primary Chronicle (Laur.), for example, we find forms such as *дъщери* and *тъчери* occurring within a few lines of each other, and they are lemmatised accordingly. Associating both lemmas with the same LCS reconstructed lemma is an efficient and informative way of grouping such doublets.

	sg	du	pl
nom	dъĥi: дчи, дщи dъĥь: дочь, дощь, доч, дощ	dъĥeri: дчери, дщери, дчори, дщори	dъĥere: дчере, дщере, дчоре, дщоре dъĥeri: дчери, дщери, дчори, дщори
acc	dъĥerь: дчерь, дщерь, дчорь, дщорь dъĥь: дочь, дощь, доч, дощ	dъĥeri: дчери, дщери, дчори, дщори	dъĥeri: дчери, дщери, дчори, дщори
gen	dъĥere: дчере, дщере, дчоре, дщоре dъĥeri: дчери, дщери, дчори, дщори	dъĥeru: дчеру, дщеру, дчору, дщору dъĥerьju: дчерью, дщерью, дчорью, дщорью	dъĥerъ: дчер, дщер, дчор, дщор dъĥerьjь: дчерей, дщерей, дчорей, дщорей
dat	dъĥeri: дчери, дщери, дчори, дщори	dъĥerьma: дчерма, дщерма, дчорма, дщорма	dъĥerьmъ: дчерем, дщерем, дчорем, дщорем dъĥerǢmъ: дчерям, дщерям, дчорям, дщорям
loc	dъĥere: дчере, дщере, дчоре, дщоре dъĥeri: дчери, дщери, дчори, дщори	dъĥeru: дчеру, дщеру, дчору, дщору dъĥerьju: дчерью, дщерью, дчорью, дщорью	dъĥerьхъ: дчерех, дщерех, дчорех, дщорех dъĥerǢхъ: дчерях, дщерях, дчорях, дщорях

ins	dъĥerьjǫ: дчерью, дщерью, дчорью, дщорью	dъĥerьma: дчерма, дщерма, дчорма, дщорма	dъĥerьmi: дчерми, дщерми, дчорми, дщорми dъĥerǢmi: дчерями, дщерями, дчорями, дщорями
voc	dъĥi: дчи, дщи dъĥь: дочь, дощь, доч, дощ	dъĥeri: дчери, дщери, дчори, дщори	dъĥere: дчере, дщере, дчоре, дщоре dъĥeri: дчери, дщери, дчори, дщори

Table 1. Generated LCS forms and their forward-reconstructed modern Russian forms for the LCS reconstructed lemma *dъĥi 'daughter'

To these reconstructed LCS paradigms we applied an algorithm[7] to forward-reconstruct the expected CSR forms. Since our aim here is to study specifically the jer changes, the forward reconstruction had to try to account for all possible variation in the application of sound laws from LCS onwards (and their final orthographic representation in CSR), but keep constant just the outcome of Havlik's Law. The latter was applied in a strict Northeastern form, where all jer-groups except those resulting from LCS syllabic liquids and in word-initial *jь- were treated equally, meaning no special treatment was given either to the position before *j (so-called 'tense jers'; see Popov 2020: 374)[8] or to *TRЪT-groups (Galinskaja 2009: 89–91). Such forward reconstruction was no trivial task, as right from the very beginning of East Slavic there is lexically specific variation in the reflexes of LCS sound-groups.

Most obviously this applies to borrowed Church Slavonic forms containing Bulgarian reflexes of phonemes like *ĥ and *ђ (<щ, жд> instead of native Russian <ч, ж>), but we also have things like variation in the orthographic representation of voicing assimilation: *везде* /v'ezd'e/ < *vьźьde vs *сделать* /zd'elat'/ < *sъdělati. The so-called /e/ > /o/ shift is especially problematic, because its final outcome in Russian depends on stress placement, for which we had no data, *and* it seems to get re-applied[9] *after* the hardening of what originally would have been following soft consonants (*дёшево*,

[7] The full forwards-reconstruction script is included in the data repository as LCS_to_CSR.js

[8] An exception was made only for the nom. sg. masc. long-form adjectival endings *-ъjь and *-ьjь of participles (but not adjectives), where we permit SSl. /yj/ and /ij/ reflexes as variants, since these are often their only listed form in Wiktionary.

[9] There are various views on when the /e/>/o/ shift happened, only some of which would entail re-application, see e.g. Galinskaja (2009: 135).

молодёжь). This, combined with the possibility of <o> spellings in words like *горячо́* <*gorę̆he (but not *ещё* <*ješče), meant we felt compelled to generate variants with <o> reflexes of *e after all palatal letters, regardless of the following consonant, hence the rather ridiculous variant forms like *дчорь* <*dъ̆herъ in Table 1.

At each step in the forward reconstruction where variant outcomes like the above were possible, all possible reflexes are generated and passed onto the next step.[10] This systematic overgeneration maximises the chance of matching our generated forms with their actual CSR equivalents, and ensures that mismatches are caused *only* by deviations from the pure Havlikian outcome. In the *dъ̆i example in Table 1 the overgeneration occurs due to three factors: a) both Russian and Bulgarian reflexes of *ĥ (*дчи* vs. *дщи*); b) the <o> reflexes of *e after palatals mentioned above (*дчери* vs. *дчори*); and c) word-final *-ĥь yields forms with and without the soft sign (*дочь*, *доч*, *дощь*, *дощ*).

Our next step was to extract CSR inflected forms from Russian Wiktionary for our list of 1464 CSR lemmas that had both an OES lemma match and an LCS reconstructed lemma. We used a script (ru_wiktionary_scraper.js) to scrape inflectional forms directly from the HTML of the webpages, which resulted in deduplicated unstructured lists of inflectional forms linked to each lemma in JSON format.[11] Given that the shape of paradigms has changed significantly between LCS and CSR (e.g. loss of dual, emergence of gerunds), trying to align our LCS inflection-labels with their descendant CSR Wiktonary-labels would in any case have been unfeasible. This JSON data was then filtered against our list of matched CSR lemmas.

In several cases this produced multiple paradigms for the same lemma. In most cases these paradigms were identical, such as for the two second-declension homonyms *белка* I ‘squirrel’ and *белка* II ‘delirium tremens’. In such cases the duplicate was removed from the dataset. Duplicate paradigms that only differed in stress, with no other orthographical consequences, were also removed, such as *ну́жник/нужни́к* ‘toilet’. When paradigms of different inflection classes were listed as variant forms for the same lemma, the variant paradigms were retained, as in the case of *изымать* ‘take out’ which is listed with two alternate present-tense paradigms: *изъемлю, изъемлешь* and *изымаю*, *изымаешь*. The same was done when paradigms with two variant prefixation patterns were listed. For example, *изъять* ‘take out’ is listed with two present-tense paradigms with different reflexes of the prefix: *изыму* vs. *изойму*. In cases where one Old East Slavonic lemma was the etymon of several CSR lemmas with different paradigms, all

[10] The largest number of variants generated from a single LCS form in our dataset was 24, from the nom. sg. masc. def. present-participle *sъ̆dorvьstvujǫ̆ĥjь > *сдоровствующей*, *сдоровствующей*, *сдравствующей*, *сдоровствующий*, *сдоровствующий*, *сдравствующий*, *сдравствующий*, *здоровствующей*, *здоровствующей*, *здравствующей*, *здравствующей*, *здоровствующий*, *здоровствующий*, *здравствующий*, *здравствующий*, *сдоровствующей*, *сдоровствующей*, *сдравствующей*, *сдравствующей*, *здоровствующей*, *здоровствующей*, *здравствующей*, *здравствующей*. Full data can be found in lcs_converted.json

[11] Morphologically labelled inflection-table data *has* been extracted from Russian Wiktionary by Tatu Ylonen using his Wiktextract tool (Ylonen 2022), but Ylonen’s paper focused on English Wiktionary, and datasets from other language-versions are provided with the caveat that they are a “work in progress and may still contain many errors or omissions” (https://kaikki.org/ruwiktionary/Русский/index.html).

those paradigms were also retained. The extreme case of this is the OES lemma *вихъръ* ‘whirlwind, which was matched with CSR *вихрь*, *вихор* and *вихорь*, the latter of which has two Wiktionary paradigms, one with fleeting vowel and one without. All these four paradigms were retained.

This resulted in a dataset of 1445 CSR paradigms and a total of 17905 individual CSR word forms. The next step was to see how much of these paradigms could be accounted for from their corresponding forward-reconstructed LCS paradigms. Forms retained in our LCS paradigms which do not survive into CSR (e.g. lost verb forms such as the aorist and imperfect) are unproblematic for the matching algorithm, since it only has to account for the Wiktionary forms; forward-reconstructed forms like aorist 1sg *взях* ‘took’ (<*vъzęхъ) are simply surplus to requirements. Conversely, CSR inflectional-categories which did not exist in LCS, such as gerund forms, often straightforwardly match the forward-reconstructed output of masculine nominative singular short form present and past participle forms, which is, of course, where they originate. For example, the gerund forms of *праздновать* ‘celebrate’, *празднуя* and *праздновав*, match straightforwardly with the forward-reconstructed outputs of LCS *porzdьnujǫ (present active participle, masc nom sg short form) and *porzdьnovavъ (past active participle, masc nom sg short form). Similarly, retention of the LCS dual-forms is judicious given that modern Russian plurals occasionally descend from such forms (e.g. *плечи* ‘shoulders’, *уши* ‘ears’).

3. Dataset and annotation

In the resulting dataset, 11731 CSR Wiktionary forms (65.5% of the extracted set) found straightforward forward-reconstructed matches. 6174 forms did not. Eckhoff and Berdicevskis manually classified each missed match according to the assumed cause, into the categories listed in Table 2. A missed match could be assigned to several categories at once.

Label	Explanation	Jer realisation issue?	Count
cluster	Weak jer vocalisation breaks up a consonant cluster that is difficult to pronounce. We relied on our intuitions about which clusters are "difficult to pronounce". Our hope is that our data could potentially be used to develop a more formal definition. Example: SF nom. sg. masc. *тесен* ‘tight’ predicted form: **тесн*	yes	1990
analogy	Deviance from Havlik’s Law is in line with at least	yes	637

	one other form in the paradigm (interparadigmatic analogy is ignored) Example: gen. pl. *служб* ‘service’ (cf. nom.sg. *служба*, nom.pl. *службы* etc.) predicted form: **служеб*		
Church Slavonic influence	Deviance from Havlik’s Law is likely to be due to Church Slavonic influence Example: *собор* ‘cathedral, clerical council’ predicted form: **сбор*	yes	1638
imperative	The conversion script does not produce the full set of innovative CSR imperative forms Example: *снимите* ‘take off' predicted form: **снимете*	no	559
tense jer	A jer yields *и* or *ы* before /j/ (tense position), while no special reflex is expected in the East Slavonic dialects underlying CSR (this includes all masc nom sg LF adjectives that are not end-stressed) Example: *веселий* gen. pl. ‘merriness’ predicted form: *веселей	yes	1559
soft short form	Masculine singular soft adjective short forms were forward-reconstructed with a word-final soft sign which is not retained in the CSR forms. Example: *древен* ‘ancient' (the form is infrequent in CSR) predicted form: **древень*	no	30
prefix issue	The prefix occurred in a different form to that in the forward-reconstructed form Example: past sg. masc. *собирал* ‘collect’ predicted form: **сбирал*	yes	1817
category change	The lemma had changed inflectional pattern Example*: азбука* ‘alphabet’ (changed from ū-declension to ā-declension)	no	495
irregular change	The mismatch was due to irregular (morpho)phonological change *Example: пскович* ‘Pskovian’ predicted form: **пльскович* (cluster simplification)	some	1184
orthography	The mismatch was due to CSR orthography (in a wide sense) actual form: *влезть* ‘to climb in’ predicted form: **влесть*	no	378
other	Various other causes	no	756

Table 2. Classification of missed matches with counts and indication of whether they are due to differences in jer realisation

Some of the annotation categories mark non-matches that can be ignored, either because of their systematic nature (tense-jer spellings of nouns in *-ие* and masc nom sg LF adjectives, the systematic absence of soft stem-final consonants in masc nom sg SF adjectives), because of their idiosyncrasy (irregular change, category change, orthography) or because of a limitation of the forward-reconstruction script (such as the missing generation of various innovative imperative forms). The three first annotation categories (cluster, analogy, Church Slavonic influence), however, address the three most common generalisations about deviations from the regular jer change, which we will focus on in our small pilot study.

An important limitation of the current annotation is that is has been done only for mismatches, which means that cases when one or more of the factors listed in Table 2 (for instance, a consonant cluster, or potential for analogical levelling, or Church Slavonic influence) *are* present, but *no* deviation from Havlik's Law is observed, cannot be automatically identified from the dataset. A possibility to discover such cases is crucial for quantitative analysis of the predictive power of the explanations, and we plan to add this annotation later.

4. Pilot study

With this dataset we are, however, able to test some hypotheses about actually occurring CSR deviations from Havlik's Law. We used a cleaned-up dataset that excluded occurrences tagged "tense jer", "imperative", "orthography", "category change", "soft SF", and "irregular change". This produced a dataset of 14127 forms, of which 11701 (82.9%) were matched and 2426 (17.1%) were not.

As mentioned in the introduction, Isačenko (1970) goes far in stating firm morphophonological rules for the long-term fallout of the jer change. We will use the subset of our data annotated "cluster" (see Table 2) to assess whether the rules cited below are confirmed by our data. Rule B is a jer insertion rule, the other rules affect vocalisation of weak jers.

- Rule B: A jer is inserted between stem-final obstruent+sonorant (Isačenko 1970: 79)[12]: *огнь* 'fire' > *огънь* > *огонь*
- Rule F: Verbal roots are syllabic, i.e. they may not have the shape C or CC(C) (Isačenko 1970:88): *чьстити* 'honour' > *честить*[13]
- Rule H: A fleeting vowel becomes a fixed vowel before stem-final consonant clusters CC(C) before a grammatical morpheme (Isačenko 1970:92): *тъска* 'longing' > *тоска*

[12] Where the inventory of sonorants is /r/, /l/, /n/, /m/ and /v/.

[13] Our example, note that Isačenko does not provide any examples of this, nor does he refer back to the rule when discussing CSR verbs such as *мстить* 'avenge' (Isačenko 1970: 93), which clearly violate this rule.

- Rules I and J: Multiple fleeting vowels in a single lexeme are only allowed when two adjacent morphemes containing a fleeting vowel are separated by a morpheme boundary. In stems not divided by a prefix/preposition boundary and containing more than one vowel/zero alternation, only the last of these alternations is preserved (Isačenko 1970: 94)

1513 non-matching forms in our cleaned dataset were labelled "cluster" (10.7%), i.e. we thought it likely that a weak jer had been vocalised to avoid a consonant cluster. This included examples where the jer was not etymological. In a separate dataset (cluster.csv) these were manually tagged for

- cluster form (the exact cluster that had been broken up)
- cluster resolution type: what type of cluster was resolved by vocalising the weak jer, and was the jer etymological?
- position (prefix, suffix, verb root, stem-inital, stem-final)
- whether there were multiple potential fleeting vowels in the word and if so whether a morpheme boundary was involved and what position the cluster was in

We look exclusively at cluster resolution in roots, i.e. not in derivational prefixes and suffixes. We therefore exclude the 646 occurrences of resolved clusters in prefixes and 260 occurrences of resolved clusters in suffixes. 267 occurrences had vocalisation in a TRЪT stem cluster. Since this seems to be consistent in the dataset, as expected from the literature, these were also excluded. We also exclude occurrences in verb roots, as Isačenko's Rule F is not clear and verbs overwhelmingly have stem suffixes. This leaves us with 224 forms belonging to 40 lemmas.

Looking first at Isačenko's Rules I and J, we found that only 12 of the forms[14] in our nominal root subset had the potential for two fleeting vowels, ten of them across a suffix boundary. In all of these ten,[15] the vocalised weak jer was found in the root-final syllable, and was vocalised in addition to the strong jer in the following derivational suffix, and in all of them the explanation can also be analogy. For example, CSR gen pl *ложек* (predicted **лжек*) 'spoons' from LCS *lъžьkъ vocalises both the weak jer in the root, in keeping with the rest of the paradigm, and the strong jer as a fleeting vowel in the diminutive suffix.

There were also two examples with potential for two fleeting vowels in the root, masc nom sg short adjective form *лёгок* (predicted **льгок*) 'light' from LCS *lьgъkъ and gen

[14] See Isačenko 1970:96–97 for discussion of some of these forms.

[15] *бочек, душеполезен, ложен, ложек, любовен, молебен, отечеств, солнечен, точен, честен* vs. predicted **бчек*, **душепользен*, **лжен*, **лжек*, **любвен*, **мольбен, *отчеств*, **солнчен*, **тчен*, **чстен.*

pl *мечт* (predicted **мчет*) ‘dream’ from LCS *mьčьtъ.[16] Again, both examples are also tagged for potential analogy, since the vocalisation of the weak jer in the first syllable is in keeping with the rest of the paradigm. While the first example does preserve the last fleeting vowel, but turns the first one into a constant vowel, in accordance with Isačenko’s Rule J, the second example does not, but rather eliminates the last fleeting vowel and turns the first vowel into a constant vowel. This is then a violation of Rule J, but in keeping with an analogy-based explanation.

Turning to Rule H, there were 212 nominal forms with potential for only one fleeting vowel, belonging to 19 noun lemmas and nine adjective lemmas. Since the deviant adjective forms[17] are mostly either due to a corresponding noun with the same behaviour or part of the root being reinterpreted as a suffix, we will ignore them here and discuss only the 132 noun forms. The 19 CSR lemmas in question are *бисер* ‘pearl’ < LCS *bisьrъ, *вопль* ‘howl’ < LCS *vъpĺь, *весь* ‘village’ < LCS *vьsь, *гот* ‘Goth’ < LCS *gъtъ, *дверь* ‘door’ < LCS *dvьrь, *дождь* ‘rain’ < LCS *dъžđь, *доска* ‘board’ < LCS *dъska, *дочь* ‘daughter’ < LCS *dъđь , *дебри* ‘wilderness’ < LCS *dьbrь, *жезл* ‘staff’ < LCS *žьzlъ, *земля* ‘land’ < LCS *zemĺĘ, *кознь* ‘craftiness’ < LCS *kъznь, *лесть* ‘flattery’ < LCS *lьstь, *месть* ‘revenge’ < LCS *mьstь, *прелесть* ‘delight’ < LCS *perlьstь, *сноха* ‘daughter-in-law’ < LCS *snъxa, *тоска* ‘longing’ < LCS *tъska, *тесть* ‘father-in-law’ < LCS *tьstь, *честь* ‘honour’ < LCS *čьstь.

59 of these forms follow Rule H, i.e. a fleeting vowel becomes a fixed one before a consonant cluster directly before a grammatical morpheme. The nine lemmas involved are *дождь, доска, лесть, месть, прелесть, тоска, тесть* and *честь*.[18] By definition, all of those can also be accounted for by analogy, since at least one form in each paradigm has the jer in question in strong position. We may also note that if the weak jer is not vocalised, it will in all cases produce a CCC stem before the grammatical morpheme (preceded by a prefix in the case of *прелесть*). This is in fact something they have in common with several of the lemmas that do not follow Rule H, namely *дверь, сноха; вопль, дебри, жезл* and *кознь* accounting for a further 43 forms. Of course, the latter four *do* have a stem-final CC group, but in this instance the CC group consists of obstruent+sonorant, and we would have expected jer-insertion by Rule B instead.[19] It is therefore tempting to suggest that a generalisation stating that weak jers may be vocalised to avoid CCC stems before grammatical morphemes may account for more of the data than Isačenko’s Rule H does.

[16] While gen pl of *мечта* is often considered to be a paradigmatic gap by dictionaries, the form *мечт* does occur, and, more importantly, there is no rival potential form with a different outcome of the jer change.

[17] From CSR lemmas *благочестивый*, *жёсткий*, *земельный*, *напрасный*, *нечестивый*, *пресный*, *полный*, *тощий*.

[18] All these lemmas are discussed by Isačenko (1970: 92–93 and 102–103 for the deviant gen pl *досок* of *доска* ‘board’).

[19] We include *вопль* here since gen pl *земель* of *земля* demonstrates that j-palatalisation products of labials are not immune to jer insertion.

Many more observations may be made even in this very small subset of our data, and it is clear that the full dataset has great potential for further hypothesis testing and generalisations.

5. Conclusion

The main contribution of this article is an exploration of a methodology for large-scale quantitative study of the jer change as it is reflected in CSR as represented by Russian Wiktionary. The idea was to find out exactly what proportion of the modern forms can be accounted for by a pure unmodified application of Havlik's Law, so that exceptions could be more systematically identified and investigated. To this end we employed a computerised inflectional morphology of LCS to generate the ancestors of CSR forms, as well as a forward-reconstruction algorithm that tries to convert these into CSR, but with a strict implementation of Havlik's Law. Our final dataset included 17905 CSR forms from 1445 different paradigms, which were automatically matched against their computer-generated predicted forms. The non-matches in the dataset were manually annotated for the potential causes of the missed match, including the ones most frequently invoked in the literature: “difficult” consonant clusters, analogy and Church Slavonic influence. We found that especially consonant clusters and Church Slavonic influence were prominent potential causes, while there were also a number of other prominent factors that could prevent a match, such as irregular (morpho)phonological change. In a smaller version of the dataset that excluded mismatches that may not be directly due to jer realisation, we found that 82.9% of the forms were matched and 17.1% not. We thus see that Havlik’s law held in a large majority of the cases in this more focused dataset. To further demonstrate the value of the methodology and dataset we provided a small pilot study where we tested some of the morphophonological rules proposed by Isačenko (1970) against this smaller dataset. The pilot study is meant as nothing more than a proof-of-concept example, and it is worth noting that the two methodologies cannot be directly compared, as Isačenko provides no quantitative estimates. A more systematic approach to the role of consonant clusters would be a promising avenue for further research. In any case, the pilot immediately shows the potential of the method for the jer change in particular, as well as for systematic empirical study of *any* phonological change. The current dataset can easily be expanded by processing *all* the jer-containing TOROT lemmas without a frequency restriction. It would also make a good point of departure for a broader study of East Slavonic if dictionary data for Ukrainian and Belarusian were to be added.

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On Old Czech Segmentative Verbs and Their Origin

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Abstract

This article proposes an analysis of the origin of a class of segmentative verbs in Czech, which are prefixed with *za-* and which profile a natural quantum of an action, not unlike semelfactives suffixed with congeners of Late Common Slavic **-nǫ-* (cf. Nesset 2013, Benacchio 2026). After a brief description of these verbs in contemporary Czech based on Łaziński (2020a, 2020b), it presents data for these verbs drawn from the *Vokabulář webový* and the *Staročeská textová banka*, which indicate that these verbs are of a relatively early provenance in Czech. It proposes an analysis of their rise as a temporal metaphorical extension of the original spatial meaning of *za-*, i.e., 'motion beyond a landmark'.

1. Introduction

This article discusses the origin of Czech segmentative verbs in *za-*, and offers the hypothesis that a source-oriented meaning of Old Czech motion verbs in *za-* was the source of Czech segmentative *za-*. In particular, it argues that a metaphorical extension from the domain of space to that of time was the mechanism whereby Czech segmentatives arose.

The term *segmentative* comes from Łaziński (2020a cf. also 2020b: 85 ff.), and refers to a verb prefixed with *za-* that "singles out one quantum of [a homogeneous] action" (Łaziński 2020a: 263). Two examples that he cites are *zawalczyć o coś* 'struggle/vie for something' and *zapozować* 'pose for a photo shoot'. Łaziński points out that reference to an actional quantum overrides any potential resultativity of a given predicate, so that in *zaśpiewać piosenkę* 'sing a song' the predicate simply refers to the singing of a typical object of singing, which is also why potentially transitive segmentative verbs do not

need patients in the accusative, cf., e.g., *zagrać na fortepianie* ‘play on the piano’ and *zagrać w szachy* ‘play chess’.

Such verbs in the modern Slavic languages have been discussed previously, and termed differently. Dickey (2000: 222–229, cf. the references cited there) discusses verbs prefixed in *za-* as part of the east-west aspect division and the fact that the literature on Czech, Slovak and Sorbian has recognized that *za-* often has a totalizing meaning as opposed to an ingressive meaning in these languages, in contrast to the ingressive meaning dominant in East Slavic and Bulgarian (cf., e.g., Russian *zaigrat'* ‘start playing.PFV’, Bulgarian *zaigraja* ‘idem’). Thus, following on the point made above, Polish *zaśpiewać* ‘sing.PFV’ and Czech *zaplakat* ‘cry.PFV’ allow or even prefer reference to a total event. Petruxina (2000: 166–169, 193, 203) analyzes such verbs in Czech and Slovak as “quantal-delimitatives,” cf., e.g., (1a, 2a), which she avoids translating into Russian by means of ingressives in *za-*, as shown in (1b, 2b).

(1) a. ***Zahřmělo***. [Czech]
b. ***Progremelo***. [Russian]
‘It thundered/There was the sound of thunder.’

(2) a. *V kapse mu* ***zacinkaly*** *mince*. [Czech]
b. *V karmane u nego* ***prozveneli*** *monety*. [Russian]
‘Coins jangled in his pocket.’

Thus, there is cross-Slavic evidence for the class of segmentatives in West Slavic, as distinct from specifically ingressive verbs prefixed in *za-* in East Slavic and Bulgarian. Segmentatives in Modern Czech seem to be fairly productive. They are not restricted to verbs of sound (cf. the examples above); rather, they are attested with other verbs that express various homogeneous activities, as shown in (3).

(3) a. *Seděl na lodičce, sledoval dva splávky, občas* ***zaveslovalaby jej voda neodnesla blízko k jezu.***
‘He sat in the little boat, followed two rafts, occasionally rowed a little so the water would not carry him too close to the weir.’
b. *Ten vepředu hbitě* ***zamanévroval****, seskočili z chodníku a byli pryč*.
‘The one in front maneuvered numbly, they jumped off the sidewalk and were gone.’
c. *Dvojice pak párkrát* ***zapózovala*** *v přilehlém parku fotografovi, a nakonec se všichni odebrali do hotelu Troja v Kobylisích* […]
‘A couple then posed for a photographer a couple times in the adjacent park, and finally everyone left for the Troja Hotel in Kobylisy […]’

The verb in (3a), *zaveslovat*, is defined by the SSJČ as ‘perform a few motions with oars’. The verbs in (3b–c) are not in dictionaries, which suggests that they are of relatively recent origin. The examples in context can only be interpreted as single events consisting of one “quantum” of the respective actions (i.e., making a maneuver and posing for a photo shoot respectively).

It should be pointed out that dictionaries can vary somewhat regarding whether they define a given verb prefixed with *za-* as segmentative or ingressive. The *Slovník*

spisovného jazyka českého (SSJČ) consistently defines such verbs as segmentatives, e.g., *zafoukat* as 'blow briefly or for a while'. In contrast, the *Příruční slovník jazyka českého* (PSJČ) defines *zafoukat* as 'begin to blow, blow several times [on something]'. In general, though, the PSJČ and SSJČ agree, and the segmentative meaning predominates. Occasionally the PSJČ combines the definitions, as for *zavanout*, which it defines as 'begin to blow, ordinarily for a moment'. All of this can be interpreted as evidence that in Czech homogeneous activity verbs prefixed in *za-* are vague with respect to a distinction between segmentativity and ingressivity, and their interpretation depends on the context. However, segmentivity seems to dominate, which comports with Veselý's (2020: 82–91) typology of Czech perfective Aktionsart verbs, according to which activity verbs prefixed with *za-* are "quantitative" (and ingressive *za-* is barely mentioned). In this regard, it should be pointed out that verbs prefixed with segmentative *za-* and suffixed with semelfactive *-nout* are never defined as ingressive, cf., e.g., *zakřiknout* 'give a sudden shout'.

The next section presents a brief discussion of segmentatives in Old Czech, based on the evidence in the VW and STB.

2. Segmentatives in Old Czech

The existence of segmentatives in Old Czech is indirectly evident in the entries in the aggregate dictionary of the *Vokabulář webový* (VW); it can also be established from examples in the *Staročeská textová banka* (STB). These two methods are considered in order.

According to my assessment of Old Czech verbs prefixed in *za-* contained in the VW, there are 32 verbs that are either definite or potential segmentatives. Regarding the former, the VW gives definitions in the modern language that clearly indicate that the verbs are segmentatives. Thus, Old Czech *zatrúbiti* is defined as *zatroubit*, which the SSJČ translates as '(of brass instruments) emit a sound or tone'. Potential segmentatives are those that the VW defines with verbs which are in turn defined in the SSJČ with verbs that are ambiguous between a segmentative and an ingressive meaning. An example is Old Czech *zazvoniti*, which is defined as *zazvonit*, which the SSJČ defines as *krátce, chvíli zvonit; začít zvonit* 'ring briefly or for a while; start to ring'.

The 32 segmentatives in the VW are given below in (4):

(4) Old Czech *za-* segmentatives: definite segmentatives are bolded; potential segmentatives are in regular font; if known from the VW/STB, the time of earliest attestation is given.

zablyščiti 'flash (of the eyes)', 1417
zadmychnúti 'blow'
zahřímati 'thunder', 1471
zahřměti 'thunder', 1417
zaskoliti 'howl, whine'
zaskučěti 'howl, whine'
zastonati 'moan', turn of the 14th–15th cent.
zaščekati 'bark'

zahvízdati ‘whistle’
zahvízdnúti ‘whistle’
zajěčěti ‘scream’
zakašlati ‘cough’, 1444
zaklektati ‘shake’, 1360’s
zakokrhati ‘crow’, 1470
zakřičěti ‘shout’, late 1360’s
zakřiknúti ‘shout’, late 1360’s
zakvieliti ‘wail, lament’
zaláti ‘bark, scold’
zamáchati ‘wave’
zapěti ‘sing’, 1360’s
zaškřípěti ‘squeak, scrunch’
zatrúbiti ‘trumpet’, 1350–1375
zatřiesti ‘shake, rattle’, 1417
zaúpiti ‘wail, howl’
zaváti ‘break wind’
zavieti ‘blow’
zavrtěti ‘shake (one’s head), wag’, 1480’s
zavznieti ‘sound’, 1430’s
zazaháleti ‘loaf, laze’
zazvoniti ‘ring’
zazvučěti ‘sound’
zažěleti ‘regret, feel sorry’, 1469

Of these 32 segmentative verbs, 22 are verbs of sound phenomena; 8 are verbs of (agentive or non-agentive) physical activity; one is a verb of emotion (*zaželeti* ‘regret.PFV’); one is a verb of speaker evaluation (*zazaháleti* ‘laze.PFV’). The verbs that have an alternate meaning of ingressivity are all verbs of sound phenomena (though note that, ironically, the according to the PSJČ each of these only has a segmentative meaning).

From the available dates of first attestation, it appears that segmentatives of sound phenomena were in use by the 1360’s. One segmentative of physical activity (*zaklekati* ‘shake.PFV’) is attested at the same time. The emotion verb *zažěleti* ‘regret.PFV’ appears later, in 1469. From the available data it seems that segmentatives of sound phenomena and physical activities were in existence in the 14th century, with other verbs (e.g., emotion verbs) appearing later.

There are two stative verbs prefixed with *za-* in the aggregate dictionary of the VW, which do not fit the definition of segmentives, but seem to be related: *zasěděti*, which is defined as *posědět* ‘sit for some time’, with no attestations in the STB, and *zaležěti*, defined as *proležet* ‘lie for a period of time’, first attested in 1472 in the following example:

(5) *Vida v práci přietele, Jetřich nepomeška déle, vypusti tak žalostný hlas, jakož zaležal ten čas, neb jest smutka dosti jměl […]*
‘Seeing his friend in torment, Jetřich did not hesitate further, let out such a pitiable cry, as he lay there for that time, for he had enough sadness […]’

These verbs are not preserved in the modern language (similar to the evaluative verb *zazaháleti* ‘loaf, laze’, which has been replaced by *prozahálet* ‘loaf for a period of time’ in the modern language) and appear to represent some impulse to extend segmentative *za-*. These cannot be considered further here.

In any case, STB attests some of the verbs in *za-* given in (4) in contexts of a single quantum of an activity, as shown in the examples in (6).

(6) a. *An* ***zakřik*** *a velmi jej rozedřěv, vyjide z něho, […]* [late 1360’s]
‘It, having cried out and having convulsed him greatly, went out of him, […]’

b. *A rozedřěv jeho duch nečistý,* ***zakřičav*** *velikým hlasem, vynide z něho*.
[late 1360's]
'And having convulsed him the unclean spirit, having cried with a loud voice, went out of him.'
c. *Hovora jě sě jich prositi, aby jemu přieli třikrát* ***zatrúbiti****.* [late 14th cent.]
'Hovora started requesting that they allow him to blow the horn three times.'
d. *Tehdy Azaf* ***zavrtěv*** *hlavú, vece […]* [1480's]
'Then Azaf, having shaken his head, said […]'

These examples all display clear cases of single quanta of actions, as opposed to the onsets of continuing actions. Ex. (6a) contains the transgressive of *zakřiknúti* 'shout once.PFV', and the related non-semelfactive *zakřičěti* 'shout.PFV' occurs in another telling of the same Biblical story in (6b), both refer to a single whole event (whereby the respective meanings of segmentative *za-* and semelfactive *-nú-* overlap, cf. Benacchio 2026: 43). In (6c), *zatrúbiti* 'trumpet' refers to a single blow on a horn (to be repeated three times), and in (6d) Azaf's shaking of his head is a limited action communicating disagreement with Lucifer.

The data presented above are solid evidence for the existence of segmentative verbs in Old Czech from the 14th century. The existence of these verbs at this early point in time is interesting as it coincides with the existence of a small set of stative delimitative verbs (e.g., *pobyti* 'be for some time.PFV', *poležěti* 'lie for some time.PFV', *posědĕti* 'sit for some time.PFV'). Delimitative verbs never became a major productive class in Czech as they did later in East Slavic (cf. Dickey and Hutcheson 2003, Dickey 2009). The precise relationship between *za-* segmentatives and *po-* delimitatives in Old Czech lies beyond the scope of this article. However, the analysis of the development of segmentative *za-* offered in sections 3 and 4 can hopefully contribute to an understanding of the relationship between the different developments.

3. Old Czech Motion Verbs Prefixed with za- with Source Orientation

Source-oriented motion verbs in *za-* are attested in Old Czech, cf., e.g., *zajíti*, which Šimek (1947) defines first as *odejíti* 'go away.PFV'; and which the STB attests in this meaning in the form of *zajdenie*, defined in a late 14th-century glossary as *discessus* 'departure'. This seems to be a continuation of the situation in Late Common Slavic, inasmuch as Old Church Slavic and Old East Slavic data are indicative; the *Slovník jazyka staroslověnského* (SJS) defines OCS *zaiti* as (1) 'go beyond.PFV' and (2) 'go away.PFV', and the *Materialy dlja slovarja drevnerusskogo jazyka po pis'mennym pamjatnikam* (MSDRJa) defines OES *zaiti* as 'go away.PFV/abire', also as the second

definition. Representative examples of Old Czech source-oriented *zajíti* are given in (7).[1]

(7) a. *Tehdy ten chudý, vzem tu mísu, vesele* ***pryč zašel****.* [3rd quarter of the 14th cent.]
'Then that poor man, taking the bowl, cheerfully went away.'
b. *A jakž to Ciprián vece, tak diábel, velmi se zahanbiv, od něho vzplanul a* ***pryč zašel****.* [1476]
'And when Ciprián said this, the devil, greatly ashamed, blazed up from him and went away.'
c. *Takež svatý Pavel, věrných křesťanóv čeledín, utěšitel svých přátel,* ***zašel od*** *nás, již jeho viec zde nenaleznem*. [1476]
'Thus St. Paul, a man of the servants of true Christians, the comforter of his friends, departed from us, we will now no longer find him here.'

In exx. (7a–b) we see a common combination of *zajíti* and *pryč/preč* 'away', whereas in ex. (7c) *zajíti* combines with the source preposition *od* 'from'.

Such usage exists alongside goal-oriented usage, shown in (8).

(8) *To já, nebožka, uslyševši, přes Jordán se přebravši,* ***na*** *tuto púšť sem* ***zašla***. [1476]
'I, an unbeliever, having heard that, having gotten across the Jordan, I came to this wilderness.'

Note here that the first-person narrative combined with *tuto* 'this' precludes motion behind a landmark, i.e., to a location that is not visible/accessible to the conceptualizer. At most, the verb here expresses a nuance of unintended direction akin to Modern Czech *zabloudit* 'lose one's way', which is one of the definitions of *zajíti* in the VW.

Old Czech *zajíti* occasionally collocates with the preposition *za* 'beyond' to refer explicitly to a trajectory beyond a landmark, as shown in (9).

(9) *V tu dobu Židé hledáchu, kak by jeho jěli, an vyšel z rukú jich,* ***za*** *řěku Jordán* ***zašel****, tu ješto svatý Jan dřieve lidi krstil, puol čtvrti mile ot Jeruzalema, neb ješče utrpenie jeho čas bieše nepřišel*. [1360/1380]
'At that time the Jews sought to capture him, he eluded them and went beyond the River Jordan where St. John had baptized people before, a half a quarter mile from Jerusalem, because the time of his suffering had still not come.'

Ex. (9) may also express the idea of unplanned direction.

It is interesting that, in reference to a trajectory beyond a landmark, *zajíti* 'beyond-go.PFV' does not seem to have been required. For example, in (10) the simplex imperfective *jíti* 'go' combines with *za* 'beyond' in a sequence of events:

(10) *Tehdy ten Kolumbanus pojal jest svatého Havla s sebú a chodil jest s ním po mnohých miestech, až jest* ***šel za*** *hory Alpes tak řečené a tam jest na púšti bydlel*. [1495]
'Then that Columbanus took St. Havel with him and walked with him to many towns, and even went beyond the so-called Alpine mountains and lived there in the wilderness.'

[1] All Old Czech textual examples are taken from the STB.

The fact that *zajíti* is not required to express such trajectories is further circumstantial evidence that the verb had other meanings that in part determined its distribution.

Given the etymological meaning of *zajíti*, i.e., 'beyond-go.PFV' and its ability to combine with source-oriented adverbs and prepositions in addition to goal-oriented ones, it seems that the source-orientation of the verb was due to the dual nature of motion beyond a landmark—and thus by default out of the visual field of an observer: one segment of the trajectory is the onset of motion from the source up to the landmark, which is visible to the observer, and the other is the location and any motion beyond the landmark, which is invisible/inaccessible to an observer at the source. These components are diagramed in Figure 1.

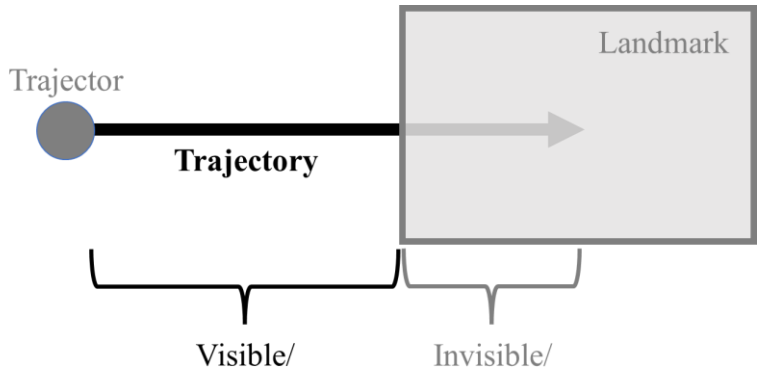


Figure 1. The Trajectory of ZAJÍTI ***and Visibility/Accessibility***

Thus, in (7a–c) the profile of *zajíti* is represented by the dark segment of the trajectory which extends up to the landmark in Figure 1.

The full set of Old Czech motion verbs and verbs with a motion component prefixed with *za-* contained in the VW (aggregate dictionary) is given in (11); if known from the VW/STB, the time of earliest attestation is given.

(11) *zaběhnúti* 'run away, disappear.PFV', mid 14th–cent.
zabežeti 'run away, disappear.PFV', 1360's
zabrati sě 'depart.PFV', 1476?
zahnati 'chase away/off.PFV', late 1360s
zajíti 'go away.PFV', 3rd quarter of 14th cent.
zaletěti 'fly away.PFV', late 1360s
zalétnúti 'flap away.PFV'
zametati 'hurl away.PFV', 1466
zanésti 'carry away.PFV', turn of 14th and 15th cent.
zaplúti 'sail away.PFV' 3rd quarter of 14th cent.
zapuditi 'chase away/off.PFV', 1360's
zavandrovati 'wander away.PFV'
zavrci 'hurl away.PFV', late 1360's

Most of these verbs are attested with *pryč/preč* and the preposition od in the STB (exceptions are *zabrati* sě, *zalétnuti*, *zavandrovati*; *zaletěti* is only attested with the preposition *od*, and *zametati* and *zaplúti* only with *pryč/preč*).

To conclude, this section has shown that source-oriented motion verbs prefixed with *za-* existed at the same time as the segmentatives prefixed with *za-*. The next section proposes an analysis of the origin of the latter.

4. The Origin of Old Czech Segmentatives in *za-*: the TIME IS SPACE Metaphor

In view of the foregoing, the hypothesis offered here is fairly simple to formulate. According to the TIME IS SPACE metaphor, abstract notions of time are conceptualized in terms of more concrete spatial notions (cf. Janda 2002 and the references cited there). The spatial extent of the accessible trajectory of motion verbs prefixed with *za-* diagramed in figure 1 correlates with a limited duration in time, i.e., the time it takes to pass along that segment of the trajectory. The space-time correlation is diagramed in figure 2:

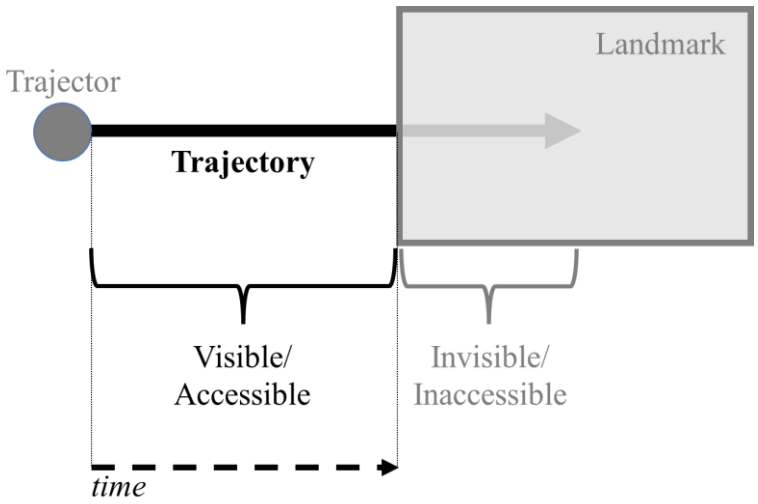


Figure 2. The Space-to-Time Transfer between Source-Oriented Spatial ZA- and Segmentative (Temporal) ZA-

In figure 2, the dotted lines running from the initial point and endpoint of the spatial trajectory accessible to the conceptualizer to the limits of the corresponding duration in time provide the mereological basis of the metaphorical extension. This metaphorical extension can probably account for the ingressive meaning of verbs in *za-* as well, inasmuch as the etymological meaning of 'beyond' of spatial *za-* includes an inaccessible trajectory that can be considered to correspond to the continued activity implied by an ingressive verb, which is not in focus.

A small piece of circumstantial evidence for the hypothesis proposed here is the fact that the VW defines Old Czech *zavieti* as either *zavanout* 'blow/start blowing for a little while' or *odvanout* 'blow off/away'. The polysemy of one verb with both the segmentative and the source-oriented spatial meanings of *za-* suggests that these two meanings are related.

5. Concluding Remarks

This paper has argued that the origin of Old Czech segmentative verbs prefixed in *za-* lies in a metaphorical extension of a spatial source-oriented meaning of the prefix evident in motion verbs. Crucially, there is no evidence that segmentatives existed prior to motion verbs prefixed with *za-* (which appear to retain a Common Slavic meaning of the prefix). The hypothesis offered here is plausible given the plethora of linguistic units in languages all over the globe that can only be explained by the TIME IS SPACE metaphor, at least as a diachronic source.

This development is similar in its mechanism to the later development of delimitatives prefixed in *po-* in East Slavic as detailed by Dickey (2007), who argues that the original spatial meaning of *po-*, surface-contact, gave rise through a metaphorical extension to the temporal meaning of temporal delimitation. A comparison of these two developments as well as other issues raised by this analysis such as the precise relationship between segmentativity and ingressivity in the history of Czech are, however, topics that must be left for a later day.

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Paired Birds and Clauses: Birch-Bark Letter no. 837

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In his insightful book, *How Russian Came to Be the Way It Is* (Nesset 2015), Tore Nesset writes:

> Emphasizing the importance of interpretation and hypothesis testing, I hope to have convinced you that historical linguistics is not just something you read about in books, but also something you do. (305)

The present essay is a modest attempt to offer some interpretations and to test some hypotheses by bringing together language and visual art in a single narrative that unfolds like a small detective story.

Among the Novgorodian birch-bark documents, the fragmentary birch-bark letter no. 837 stands out. On stratigraphic grounds, it is dated to 1140–1160.

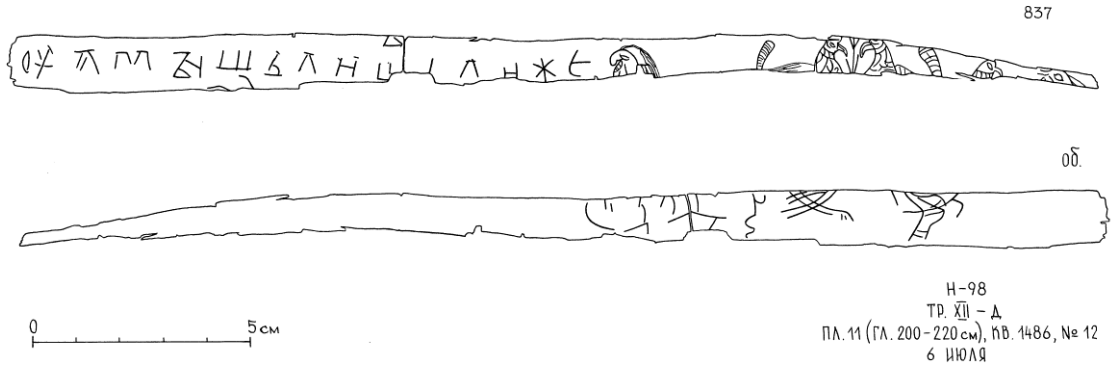


Figure 1. Birch-bark letter no. 837

V. L. Janin, A. A. Zaliznjak, and A. A. Gippius offer the following comment on this find:

> Although the surviving fragment of text is extremely small, it does not sound like a line from an ordinary birch-bark document of a business nature. Entirely unusual is the presence of a drawing next to the text (the only analogy here being the birch-bark documents of the boy Onfim). It cannot therefore be excluded that in this case a certain artistic text was written on the birch-bark sheet, embellished with an illustration or some sort of vignettes (it is less likely that this was, on the contrary, a picture

accompanied by a text, since the text is located to the left of the image). (Janin et al. 2004: 55. Translation is mine — M.K.)

To the best of my knowledge, this birch-bark letter has not been subjected to a more dedicated analysis in scholarly literature. The following discussion therefore focuses on both its visual and verbal components.

The context

Indeed, this is not an ordinary birch-bark document. Birch-bark letters containing drawings are very rare. The most famous examples are the drawings of the boy Onfim, such as his dramatic appeal "*г*[*оспод*]*и помози рабу своєму онѳиму*" ('O Lord, help your servant Onfim') in birch-bark letter no. 203 (mid-thirteenth century), accompanied by an expressive image of a boy addressing God.[1]

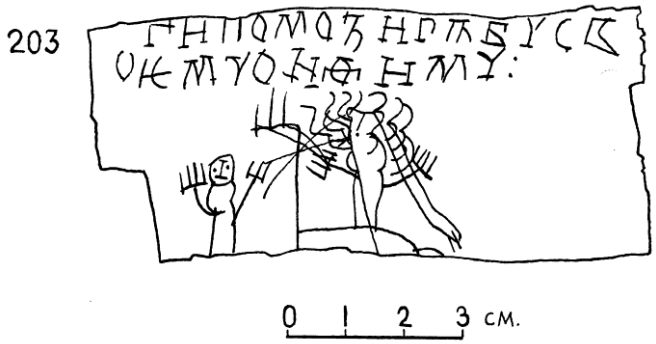


Figure 2. Birch-bark letter no. 203

Birch-bark letter no. 957 (early twelfth century), written by a certain Shevko, is more relevant for the present argument. There, an apotropaic curse is accompanied by two drawings that are compositionally opposed to one another. While the text of this birch-bark letter has been analyzed in detail by Janin et al. (2015) and Gippius & Sičinava (2021), the drawings themselves appear not to have received focused attention, although their connection to the protective formula cannot be excluded.

> *воибоудино лоукъньчо иже е ѫкльдеть да проклѧтъ боудеоуть*
> *а шьвъко ѱлъ*
> 'Voybuda's little basket. Whoever steals it, may they be cursed.
> Written by Shevko.'

[1] Unless otherwise indicated, images of birch-bark letters, their texts, and translations are taken from gramoty.ru.

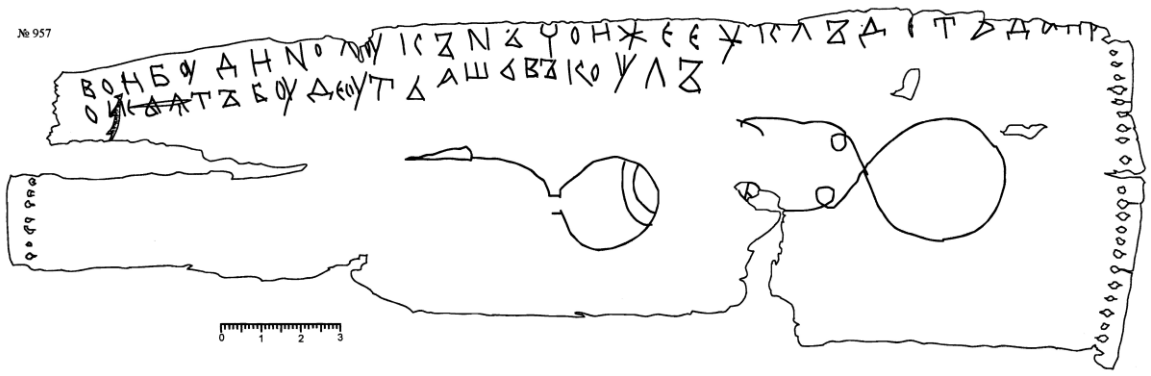


Figure 3. Birch-bark letter no. 957

Birch-bark letter no. 955, dated to the first half or middle of the twelfth century, offers the closest parallel: it combines a drawing of a crowned bride and a more crudely rendered groom in an Orthodox wedding ceremony with a folkloric fertility formula (see Collins 2011)

пеи пизда//и сѣкыле
'Let the vagina drink and the clitoris.'

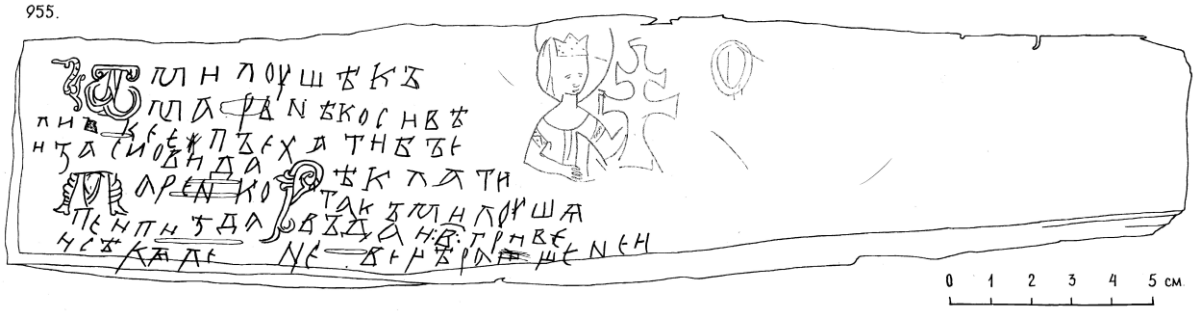


Figure 4. Birch-bark letter no. 955

Birch-bark letter no. 837 examined in this essay also preserves fragments of drawings, at least two of which are arranged in compositionally opposed positions. This suggests that here, too, the combination of image and text may have served a specific function.

Visual analysis

The surviving fragments indicate that the drawings were executed with care and a high degree of detail. This was probably not a quick, utilitarian sketch (for example, one made by a hunter conveying information rapidly), but rather a document produced for a specific purpose. Insofar as interpretation is possible, the fragments depict birds. I describe them in order of appearance from left to right.

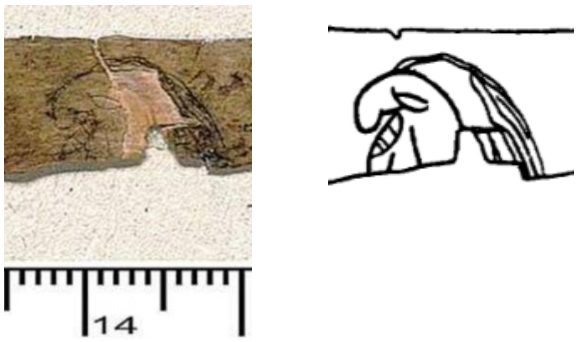


Figure 5. 13.7–14.7 cm from the left edge[2]

The fragment is poorly preserved and does not allow for a precise interpretation. Hypothetically, one may discern a round head (without ear tufts) with mottled plumage and a facial disk—possibly a fragment of an owl.[3]

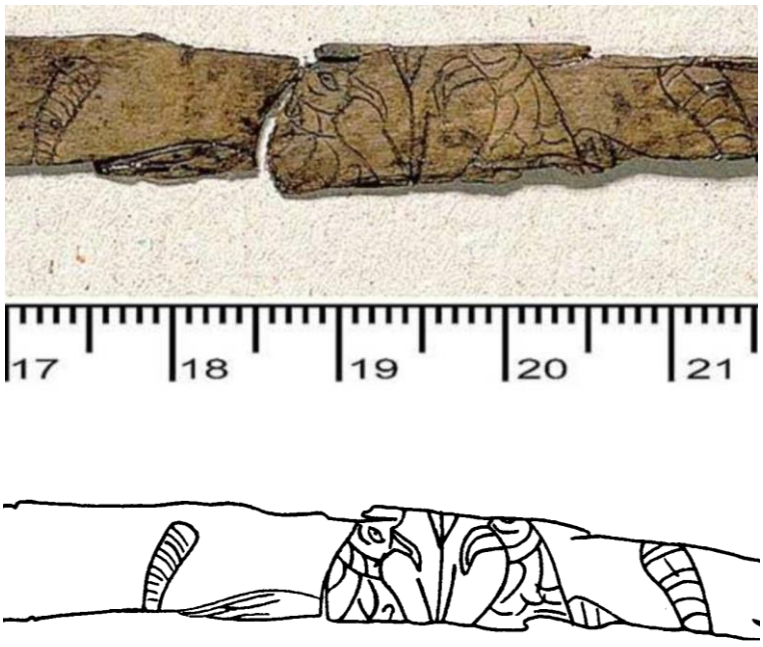


Figure 6. 17–21.5 cm from the left edge

This is the best-preserved fragment. Two birds form a compositional pair, separated by what appears to be either a vegetal ornament or—less likely—a water source (fountain). Both birds have long, curved beaks; the left bird has an open eye; the right bird's eye is closed. On the left bird, a line resembling the beginning of a crest is visible. Clearly delineated strong wings lie along the back but are not oriented downward as in birds of

[2] Both color photographs and black-and-white line drawings are presented for ease of interpretation.
[3] I sincerely thank the professional ornithologist and philologist Dr. Dmytro Klymenko for his valuable consultations.

prey. The demonstratively vertical position of the tails and the differences in the rendering of tail feathers (possibly indicated by narrow lines) point to sexual or age-related dimorphism. The mottled plumage and feather “collars” are characteristic of Columbidae (e.g. doves, pigeons) or Galliformes (e.g. hazel grouse, cock, peacock).

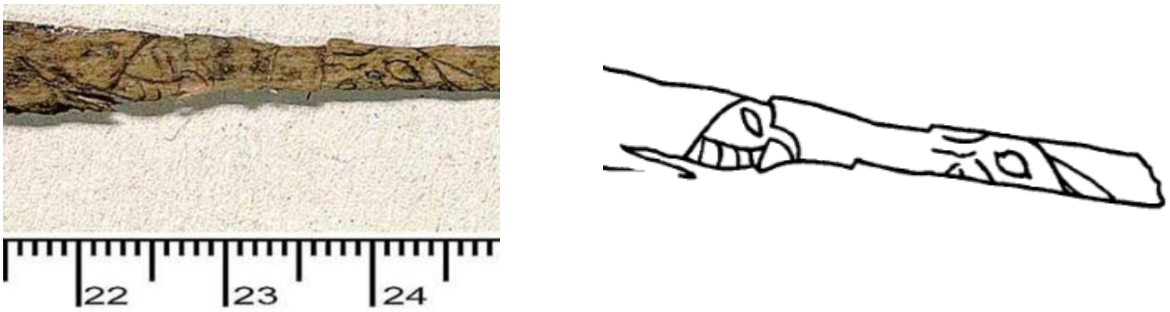


Figure 7. 21.5–24.8 cm from the left edge

This fragment is also poorly preserved. The left bird’s head is clearly visible, turned from left to right. The long, curved beak and feather collar may again indicate Columbidae (pigeon, dove). Another image, to the right of the bird’s head, cannot be properly identified; it may also be part of a head.

There are also fragments on the reverse side of the letter, which cannot be reconstructed at all (Figure 8).



Figure 8. Reverse side of birch-bark letter no. 837

To sum up this part, the well-preserved fragments clearly depict birds (either Galliformes or Columbidae), which are not uncommon subjects in Novgorodian birch-bark letters (Klimenko 2021). The poorly preserved fragments, although inconclusive, do not contradict an ornithological interpretation.

The Christian vs folk interpretation

When considering bird imagery in medieval Rus′, two principal contexts must be taken into account: the Byzantine and the folk traditions. These contexts, naturally, formed a system of cross-references rather than existing in isolation (Alpatov 2004; Belova, Petruchin 2008).

In eleventh- and twelfth-century Byzantium, medallions with birds (as well other animals or horsemen) arranged symmetrically, facing one another beak to beak, are

typical. Numerous examples survive in stone and textiles, where such medallions cover surfaces in a carpet-like manner[4]. There are many paired compositions on buildings, for instance, above doorways or on church slabs. Similar motifs appear in illuminated manuscripts, including ecclesiastical books. The tradition is well preserved in Old Rus′, often not merely inspired but produced by Greek masters.



Figure 9. Temple Pendant with Two Birds Flanking a Tree of Life, Kyivan Rus', ca. 1000–1200, (Metropolitan Museum of Art, object no. 17.190.679)



Figure 10. The Svyatoslav Miscellany (fragment), Kyivan Rus', 1073. (The State Historical Museum, Moscow, Synodal Collection, no 1043).

The distinctly Christian symbolism of such ornaments is usually interpreted as representing the harmony of heavenly and earthly powers. Birds flanking a tree are commonly interpreted as symbols of Paradise and eternity (with the Tree of Life at the center) and as guardians of the sacred realm, performing an apotropaic function. Two doves (Columbidae) symbolize Paradise, the Eucharist, and the Resurrection; a pair of peacocks (Galliformes) drinking from a cup or fountain became associated with the rivers of Paradise and with baptism in the Jordan River.

At the same time, ornithomorphic images on material objects are widely attested in the folk tradition of medieval Rus′. As Kuznetsova notes specifically with regard to the northeastern and northwestern regions:

> In the twelfth century, new types of plate pendants emerge, in which the image of Galliformes predominates. <…> In a number of images on Old Russian hollow pendants of the eleventh–twelfth centuries, crests and pointed beaks appear. (Kuznetsova 2024: 221. Translation is mine — M.K.)

Paired ornithomorphic images are well known, for example, in pendants, bracelets, lighting devices, and various traditional ornaments. The birds may face one another or look in opposite directions; they are often separated by vegetal ornamentation. A widespread paired image of a rooster and a hen has survived in traditional East Slavic embroidery. Although medieval embroidery has survived only fragmentarily, it is assumed that similar motifs were not limited to the better-preserved metal objects of medieval material culture.

[4] I sincerely thank the professional art historian Nikolay Ivanov for his valuable consultations.



Figure 11. A pendant, 12th cent., Novgorod (Kuznetsova 2024, fig. 4:1)



Figure 12. Embroidery, 19th. cent. fragment (Sbornik 1877)

In folk culture, the symbolism of bird pairs is iconically associated with married couples, especially in wedding rituals. A pair of doves symbolizes harmony and is a popular motif representing the bride and groom. A rooster and hen likewise appear frequently in wedding symbolism (on ritual towels and in elements of clothing) as signs of fidelity, prosperity, and the orderly life of a new household.

Thus, the visual evidence does not justify a clear binary choice between a Christian and a folk interpretation. Symmetrical birds separated by a vegetal element belong to the Byzantine and Rus′ visual repertoire.

Again, a strong parallel for this combination of Orthodox and folk traditions is provided by birch-bark letter no. 955 (see Fig. 4), which has been interpreted by Collins (2011) as a matchmaking document and whose format and ornamentation have been shown to imitate manuscript conventions. This birch-bark letter demonstrates that a text could participate in a living social ritual while also borrowing visually "bookish" devices. For the present investigation, then, the safest claim is that the imagery strongly supports a likely ritualized reading, while the exact symbolic coding of the paired birds remains open.

Textual analysis

The surviving fragments of the images suggest that the original document was at least three times wider, assuming the birds were drawn in full. Therefore, we may conclude that the text originally contained at least two or three additional lines, although its total length cannot be reconstructed. The preserved text consists of five complete words and, most likely, a fragment of a sixth, the digraph *оу* 'u':

оу	*а*	*мы*	*шьли*	*ш⌈ь⌋ли*	*же*
	Conj	1PL	walk-PRF.PL	walk-PRF.PL	PART

'… and we went went also/then'

In our previous research (Kopotev et al. 2024), we cautiously suggested that this fragment might belong to what we termed "reduplicative constructions with lexical

repetitions", which are a widespread syntactic feature of East Slavic folklore texts and can plausibly be reconstructed for earlier stages as well.

А мы просо сеяли, сеяли.
А мы просо вытопчем, вытопчем, etc.
'And we sowed millet, sowed it.
And we will trample the millet, trample it, etc.'
(A round-dance song from the wedding cycle)

Летят, летят тридцать три ворона, несут, несут тридцать три каменя.
Садились эти вороны на гороцку, на гороцку, etc.
'They fly, they fly—thirty-three ravens; they carry, they carry thirty-three stones.
These ravens settled on a little hill, on the hill, etc.'
(Incantation against infant convulsions and other illnesses)

These parallels would allow us to interpret the syntactic structure of the fragment as belonging to a folkloric text of the same type: a magic formula, possibly from the wedding cycle. There is, however, a serious linguistic objection to this interpretation. According to Wackernagel's Law, as adapted by Zaliznjak, the unstressed particle *že* is a first-rank enclitic that must follow the first phonetic word of the clause (Zaliznjak 2008, 28–29). Even if one treats *šli šli* ("walked, walked") as a serial verb occupying a single syntactic position (cf. Russian *žili-byli*, lit. "lived-were"), the particle *že* would still have to follow the first stressed word: *a my že šli šli* ("and we *že* walked and walked"). By contrast, serial-verb constructions with postposed *že*, such as the hypothetical **a my šli šli že* ("and we walked and walked *že*"), are unattested.

At the same time, constructions in which *že* functions as a connective (*skrepa*, in Zaliznjak's terminology), linking two adjacent clauses, are well attested in both Novgorodian birch-bark letters and bookish language.

продавъше дворъ // идите ***же*** *сѣмо*
'Having sold the homestead, come here.'
(Birch-bark letter no 424)

добыво серебра // присоли ***же***
'Obtain silver and send it.'
(Birch-bark letter no 436)

More importantly, this *že*-construction regularly involves the repetition of the same word, but the repeated words clearly belong to two separate clauses. This type is attested in both Old Novgorodian letters and Church Slavonic texts from the twelfth and thirteenth centuries onward:

а въ томь шесть кѫно ***присъли // присъли же*** *мою їмалѫю нитокѫ*
‘For this, **sent** six *kunas* [currency]; also **sent** my short string [of pearls].’
(Birch-bark letter no 776, 1140–1160)

[*епископ*] *помянувъ, яко далече ему* [*Авраамию*] *сущу града, скорбь ему велья, да призоветь и* ***скоро // Скоро же*** *блаженный приде по повелѣнию епископа.*
‘[The bishop], having recalled that he [Avraamy] was far from the town and therefore in great distress, ordered that he be summoned **quickly. Soon** the blessed one came by the bishop’s command.’
(Life of Avraamy of Smolensk, 13th c.)

Thus, we must acknowledge that the syntactic evidence does not support interpreting the fragment in no. 837 as a reduplicative construction with lexical repetition characteristic of folkloric syntax. However, in a broader context, repetition is a recurrent organizing principle in folkloric texts in general. The examples below should be read not as syntactic parallels but as cumulative evidence that ritual or magical texts often favor repetition and iconic semantic reinforcement over the economy of ordinary discourse.

Within the corpus of birch-bark letters, thirteen documents have been identified as incantations, protective charms, or divinatory records. Almost all of them contain repetitions of lexemes or cognate words. These include repetitions of nouns (no. 330), numeral groups (no. 715), vocatives (no. 734 and 1022), and pronouns and prepositions (no. 521 and 674)[5]. Letter no. 1022 is especially telling because it combines paraphrases of the Easter Troparion with a folk incantation:

[+ *хс҃ъ*] : *въскрь съмьртию на съмьрть на-*
стоупи ***сихаилъ англ҃ъ : сихаилъ англъ***
сихаилъ анл҃ъ *: проганѧеть тѧ гд҃ь злаѧ*
болѣзни трѧсавице (1022)

‘Christ is risen, He has defeated death by His death.
Angel Sixael, angel Sixael, angel Sixael.
The Lord chases you away, evil disease, fever!’
(An incantation against fever).

Thus, it may be safely concluded that the preserved textual fragment no. 837 does not contain a reduplicative construction with lexical repetition. Rather, it should be interpreted as containing repeated lexemes in separate clauses linked by the connective *že*, a pattern attested in both bookish texts and birch-bark letters. Lexical repetition, however, is more characteristic of folkloric and ritual texts.

[5] Verbal repetition is first attested in a fifteenth-century birch-bark letter from Pereyaslavl Ryazansky, which contains an Easter verse written in Church Slavonic (Gippius & Zavjalov 2023).

Conclusion

Birch-bark letter no. 837 is far from an easy document. It is best interpreted not as a simple written note but as an artifact situated at the intersection of image, text, and social practice. The visual composition of paired birds, together with the careful execution of the drawing, suggests a planned and meaningful object rather than a rapid informal sketch. At the same time, the imagery does not permit a strict choice between Christian and folk interpretation. Symmetrical birds flanking a central element are well attested in Byzantine and Rus′ visual culture, while paired birds also belong to the symbolic repertoire of East Slavic domestic wedding traditions.

The linguistic evidence requires similar caution. The surviving verbal fragment cannot securely be treated as a reduplicative construction attested in East Slavic folklore, since the enclitic facts point instead to a more ordinary two-clause *že*-construction attested in both Novgorodian birch-bark letters and more bookish texts. Yet the broader corpus of ritual texts shows that lexical repetitions are recurrent features of charms, protective formulas, and related genres, a feature preserved in birch-bark letters and in modern folklore/ritual texts. Thus, in the wider genre-specific sense, the fragment remains compatible with folkloric interpretation.

Thus, birch-bark letter no. 837 is best understood as a vernacular ritual artifact, probably connected with wedding-related ritual practice, that draws on a visual and textual repertoire circulating across both folk and Christian traditions. A purely bookish interpretation cannot be fully excluded, but the convergence of visual composition, symbolic imagery, and the broader patterns of repetition makes the folkloric reading the more plausible one.

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Original research article

Slavic-language publications by the Propaganda Fide in Rome during the 17th and 18th centuries

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Abstract
The present contribution aims to offer a comprehensive account of the publications in Slavic languages by the Sacra Congregatio de Propaganda Fide in Rome during the seventeenth and eighteenth centuries. The books were printed in both the Glagolitic, Cyrillic, and Latin alphabets, and texts include Catholic liturgical books such as, for example, breviaries and missals, alphabet books, and works by important theologians: Robert Bellarmine, Juan de Polanco, Juan de Jesús María, and others. The Propaganda Fide also published a few multilingual titles for special occasions such as the visit of the Swedish king Gustav III to Rome or the burial of Princess Maria Clementina Sobieska, with texts in Slavic and many other languages. The publishing activities of the Propaganda Fide in Slavic languages played an important role for the development of particularly the South Slavic written languages, and the publications constitute a significant part of the European cultural heritage.

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0. Introduction

At an exhibition at the Vatican Library in 1985, Slavic manuscripts and printed books in both the Glagolitic, Cyrillic and Latin alphabet were exhibited. The catalogue *Tre alfabeti per gli slavi* includes approximately thirty Slavic-language editions printed by the Sacra Congregatio de Propaganda Fide in Rome between 1627 and 1791 (Tre alfabeti 1985:159–169, nos. 105–133). These editions include, in addition to missals, breviaries and alphabet books also works by several well-known Catholic theologians in Slavic translation, such as (Robert Bellarmine (1542–1621), Juan de Polanco (1510–1576), Juan de Jesús María (1564–1615), Girolamo da Palermo (d. 1595).[1]

The Propaganda Fide publications played an important role for the activity of the Catholic church during the Counter Reformation, but several of the Slavic books were also sold or donated to foreign visitors, who included them in their book collections. One of the most important Swedish visitors was the polyglot Johan Gabriel Sparwenfeld (1655–1727) who visited the Propaganda Fide in 1692 (see Jacobowsky 1932:196–205). Other visitors included the orientalist and philologist Jacob Jonas Björnståhl (1731–1779), who lived in Rome between 1770 and 1773, and even the Swedish king Gustaf III, who visited the Propaganda Fide in 1784. Most of the books brought to Sweden are preserved in libraries in Uppsala, Stockholm, Västerås, Lund, Gothenburg, etc., and bibliographic descriptions of them can today be found in the Alvin portal, maintained by Uppsala University Library.[2]

In addition to the Vatican Library 1985 exhibition catalogue, several important catalogues have been published that include bibliographic descriptions of several of the Slavic Propaganda Fide books (see, for example, Kruming 1995, Sokolová 1997, Cleminson et al. 2000), and a number of specialised studies dedicated to various aspects of the Slavic editions of the Propaganda Fide has also appeared (Burić 1973, Rajkov 1979, Babič 1999, König 2003, Trunte 2009, Ambrosiani 2012, 2014, 2015, 2019, etc.).[3] However, to my knowledge so far no comprehensive overview of the production of

[1] For more details on the Propaganda Fide publication policies see for example Peri 1985.

[2] See http://urn.kb.se/resolve?urn=urn:nbn:se:alvin:portal:record-523769. In the other Nordic countries, at least seven Slavic Propaganda Fide editions are preserved at the Royal Library in Copenhagen, see Crone 1957 (nos. 16, 19, 21, 30, 31, 32, 64), whereas, unfortunately, I am not aware of the presence of any such copies in repositories in Norway or Finland.

[3] In order to get an overview of the publications, some early catalogues published by the Propaganda Fide itself can also be helpful, cf., for example, Elenchus 1667 (reprinted in Leipzig in 1670), Catalogus 1765, Catalogus 1793. However, on the one hand, the PF catalogues also include editions published by other publishers, for example Emmanuel Alvarez 1637 Latin-Illyrican Grammar, published by Francesco Caballo (Elenchus 1667:532 "Grammatica Emanuelis Latino-Illyrica. Romæ ap. Franciscum Caballum 1637. in 16."; Tre alfabeti, no. 147), Antun Kačić's 1729 Theologia Moralis, published in Bologna (Catalogus 1765:26 "KADCICH Antonius Episcopus Traguriensis. Theologia Moralis, seu Manuductor Illyricus ad cognitionem Sacri Ordinis 1729. in 4."; Catalogus 1793:14; Tre alfabeti, no. 152), but on the other hand fail to mention certain publications known to be published by the Propaganda Fide, such as the 1631 Glagolitic-alphabet Roman missal (G1631) or the 1638 Latin-alphabet *Meditationes S. Bonauenturæ* (L1638a), which are listed neither in Elenchus 1667 nor in Catalogus 1765 or Catalogus 1793.

Slavic-language editions by the Propaganda Fide in all three alphabets have been published.[4]

During a research stay at the Swedish Institute of Classical Studies in Rome in October 2025, I had the possibility to visit the Vatican Library and a few other libraries in Rome to study some of their copies of Propaganda Fide editions *de visu*, and the present contribution can be seen as a step towards a complete presentation of the Slavic editions of the Propaganda Fide during the seventeenth and eighteenth centuries.[5]

1. Glagolitic-script editions

During the seventeenth and eighteenth centuries, almost half of the Propaganda Fide Slavic editions were printed with Glagolitic letters. Between 1628 and 1648, at least six Glagolitic books were published by Rafael Levaković (c. 1590–1650): the 1628 edition of Bellarmine's *Nauk karstjanski kratak* (G1628),[6] the 1629 *Azbukividnêk slovinskiĵ* (G1629)[7], the 1631 *Missal rimskiĵ* (G1631), the 1635 edition of Juan de Polanco's *Ispravnik za erei ispovidnici* (G1635), a 1637 canonical table (G1637), and the 1648 *Časoslov rimskiĵ* (G1648). Forty years later, in 1688, the publishing of Glagolitic editions was resumed by Ivan Paštrić (1636–1708) with the 1688 *Časoslov rimskiĵ* (G1688), which was followed by a new edition of the *Azbukividnêk slovinskiĵ* (G1693), a 1706 *Missal rimskiĵ* (G1706), and the 1707 *Misse za umervšie* (G1707). Later during the same century, a new *Missal rimskiĵ* was published (G1741) by Matej Karaman (1700–1771), and in 1767 a new edition of the 1707 *Misse za umervšie* appeared (G1767). In 1742, Karaman also published a single-page pastoral letter to one of his congregations (G1742).[8] After Karaman's death, an appendix to the 1741 *Missal rimskiĵ* appeared (G1789), and in 1791 three separate titles were published: a *Čini svêtih* (G1791a), and a *Časoslov rimskiĵ* in two parts (winter, G1791b, and summer, G1791c). Kruming 1995 also mentions several undated prints from the end of the eighteenth century preserved at the Russian National Library in St. Petersburg, which I have not been able to consult (Gxviii.α–μ).[9]

[4] A preliminary checklist was published as an appendix in Ambrosiani 2019:23–26.

[5] I am very grateful to the staff at the Swedish Institute of Classical Studies in Rome and to Laura Lalli at the Vatican Library for their kind help, without which the present contribution would not have been possible to prepare.

[6] See below, Appendix, which includes basic bibliographic information on each edition as well as brief information about in which repositories copies can be found. For additional information about the number of attested copies and their location, see also the Wikipedia *List of Glagolitic printed works* [https://w.wiki/GGXM, consulted November 26, 2025].

[7] In the *Azbukividnêk*, the Slavonic text is printed with Glagolitic letters. However, at the end of the book there is a Latin language prayer in three script versions: in addition to the original Latin the text is transcribed with both Glagolitic and Cyrillic letters (cf. Cleminson et al. 2000, no. 81; König 2003).

[8] See also below on Karaman's biscriptal Glagolitic/Cyrillic *Bukvar' slavenskij*, two editions of which were published in 1739 and 1753, respectively (M1739, M1753). In 1788, a new edition of the Glagolic text of the *Bukvar'* was published in Rome by Anton Fulgoni and printed at the Propaganda Fide, see Kruming 1995:92–94, no. 51; Sokolová 1997:36, no. 15; Runjak 2010 (18. stolj., no. 8).

[9] In addition, the scholarly literature mentions some additional Glagolitic Propaganda Fide titles, the existence of which have been questioned, and which I have not been able to verify. To this category belong, for example, a

2. Latin-script editions

The Propaganda Fide Slavic Latin-script publications include at least fourteen titles,[10] of which eight were published between 1627 and 1640. These titles include the 1627 *Istvmacenge navka karstyanskoga* by Robert Bellarmine (L1627), two Latin-script version of Bellarmine's *Nauk karstjanski kratak* (L1633, L1637), a Latin-script version of Juan de Polanco's *Ispravnik* (L1636), a rare 1638 edition of Saint Bonaventure's *Razmiscglianya* (L1638a), Bartol Kašić's *Xivot gospodina nascega Isvkarsta* (L1638b), a 1640 *Kalendar iz missala rimskoga* (L1640a), and a 1640 *Ritual rimski* (L1640b). In 1657 Juan de Jesús María's *Naçin za dobro vmriti* (L1657) appeared, and in 1661 and 1662 two additional titles by Robert Bellarmine were published: the longer version of the *Nauk karstyanski* (L1661), and his *Istvmacenye symbola apostolskoga* (L1662). In 1708 a new edition of Bellarmine's longer *Istvmacenge obilnie Navka Karstyanskoga* (L1708) was published, and the following year a second edition of Juan de Jesús María's *Naçin za dobro vmriti* (L1709) appeared. Finally, in 1789 the *Ispovidagne Viere za Garczi promisgliegne Verhu Najposlidnih* (L1789) was published.[11]

3. Cyrillic-script editions

The Cyrillic-script titles constitute the smallest group among the Slavic Propaganda Fide edtions with only five or six editions, which include the 1629 *Nauk karstjanski kratak* by Robert Bellarmine (C1629) with a second Cyrillic edition published in 1661 (C1661),[12], the 1630 *Ispoviedaonik* by Girolamo da Palermo (C1630), the 1648 *Ispovedanie pravoslavnoe very* (C1648), and Filip Stanislavov's famous 1651 *Abagar* (C1651).[13]

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possible Glagolitic edition of Girolamo da Palermo's *Ispoviedaonik*, published in 1635 (see Catalogus 1793:14 "Directorium Sacerdotum. 1635. in 8. Charactere Hieronymiano, auctore P. Hieron. Panormit. Ord. Praedicatorum, & Interprete P. Stephano Matenica Franciscano", Kukuljević 1860:5, no. 36 "Matenica, Stipan, franceškan′. Naredbenik redovnikov′ (Directorium Sacerdotum). U Rimu štampom′ zbora za razplodjenje vêre. 1635. u 8."), which, however, Kruming states to be non-existent, claiming that the title referred to is Juan de Polanco's Glagolitic *Ispravnik za erei ispovidnici* (G1635), see Kruming 1995:126, nos. 55, 56).

[10] A separate category, which I have chosen not to include systematically in the present study, includes Latin-script editions financed by the Propaganda Fide but published elsewhere. Here belong, for example, Jakov Mikalja's *Blago jezika slovinskoga*, Loreto–Ancona 1649–1651, with copies at the Vatican Library and elsewhere (Tre alfabeti 1985, no. 149, digital surrogate see https://www.dlib.si/details/URN:NBN:SI:DOC-JE8X0XPR), and the same author's 1651 *Grammatika talijanska* (Tre alfabeti 1985, no. 150).

[11] Gliubich (1856:140) reports a few additional translations of works by Robert Bellarmine published by the Propaganda Fide in 1662, for example, a Slavic version of the *De ascensione mentis in Deum*, originally published in Latin in 1615. Whether these translations were ever published I have unfortunately not been able to verify.

[12] A copy of this edition seems to be preserved only at the British Library, where it is described as a Cyrillic imprint (cf. L1661 for the Latin-script version published the same year, also preserved at the BL). However, the Cyrillic edition is not mentioned in Cleminson et al. 2000, which may indicate that it was acquired by the British Library after the preparation of this catalogue.

[13] A Cyrillic edition of Juan de Polanco's *Ispravnik za erei ispovidnici*, allegedly published in 1636 by Rafael Levaković, is mentioned by König (2003:7). However, I have not seen any other evidence of the existence of this edition, and according to Kruming (1995:126, no. 57), any Cyrillic editions of this text never existed.

4. Multiscriptal editions

Two Slavic Propaganda Fide editions, the 1739 and 1753 editions of Matej Karaman's *Bukvar' slavenskij* (M1739, M1753), can be characterised as bi- or multiscriptal, with the same text printed with parallel Glagolitic (on the even pages) and Cyrillic (on the odd pages) letters.[14] In addition, the Propaganda Fide also published a few multilingual and multiscriptal works for special occasions, such as the anniversary of the burial of Princess Maria Clementina Sobieska (M1736), which includes texts in Latin, Hebrew, Greek, Arabic, Syriac, Armenian, Chaldean, Coptic, Turkish, Polish ("Polonice"), "Ruthenice" (p. 31, in Cyrillic script), "Teuthonice", Hungarian, Georgian, "Slavonice" (p. 33, in Glagolitic script), Swedish, "Malabarice", Greek, "Illyrice" (p. 35, in Latin script), Albanian ("Epirotice"), "Hollandice", "Tartarice". Worth mentioning is also the book that was presented to the Swedish king Gustav III at his visit to the Propaganda Fide in Rome in 1784 (M1784). Together with texts in many different languages and scripts, this book includes seven Slavic versions of a poem in honour of the king, printed in Glagolitic ("Illyrice/Charactere Hieronymiano"), Latin ("Dalmatice", "Polonice"), and Cyrillic ("Bulgarice", "Russice", "Ruthenice", "Serviane") script.[15]

5. Conclusions

Since the publication of the 1985 Vatican Library exhibition catalogue *Tre alfabeti …*, the study of the Propaganda Fide Slavic publications has made substantial progress with the publication of both additional printed bibliographies and catalogues and the appearance of various types of digital tools accessible through the internet, including digital surrogates of copies of several editions. The Propaganda Fide publications have also provided data for the study of the development and standardisation of the South Slavic written languages. The present contribution has added some additional information on the Propaganda Fide Slavic publications, and it is hoped, will be useful for further studies of the development of the standard written Slavic languages but also of the interplay between the use of different scripts (Glagolitic, Cyrillic, Latin) in the history of these languages. In addition, the present contribution has tried to highlight the

[14] Karaman's 1753 *Bukvar'* was often included in volumes of "Alphabeta varia" and was thus not seldom gifted to visitors to the Propaganda Fide, cf., for example, copies owned by Johan Gabriel Sparwenfeld, Jacob Jonas Björnståhl (see http://urn.kb.se/resolve?urn=urn:nbn:se:alvin:portal:record-491093), and the Swedish officer Germund Ludvig Cederhielm (1755–1841)—the latter copy was later acquired by the author August Strindberg (see http://urn.kb.se/resolve?urn=urn:nbn:se:alvin:portal:record-491108) and is now preserved at the Strindberg library in Stockholm.

[15] For a detailed discussion of this edition see Ambrosiani 2012. The Propaganda Fide edition celebrating the arrival of the Swedish Queen Christina in Rome ("Christinae Svecorvm Gothorvm Vandalorvmqve Reginae …", Rome 1756, with copies at, for example, BAV, UUB and the Swedish Institute of Classical Studies in Rome), regrettably does not include any texts in Slavic languages.

Propaganda Fide's Slavic publications as a significant part of the European cultural heritage, not only for the Slavic-speaking world but more widely, including the Nordic countries.

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Appendix: Slavic editions published by the Propaganda Fide during the period 1627–1791

A. Glagolitic-script editions

G1628 — Robert Bellarmine: **ⱃⰻⱏⰽⱏⰻ ⱄⰻⱏⰾⰴⱏⰾⰾⰻⱃⱏⱄⰽⱏⰻⰹ ⱄⰾⰻⱏⰻⰾⰾⰻⱄⰻⱏ** [Naukъ karstênski kratakъ], Rome 1628 • Copies: BAV, BNF, BPF, BSB[16], KBC, KHAZU • Literature: Tre alfabeti 1985, no. 106; Kruming 1995:67f, no. 33 (detailed description); Sokolová 1997:27, no. 6; Crone 1957, no. 16; Runjak 2010 (17. stolj., no. 3).

G1629 — **ⰰⰱⱏⰽⰻⰲⰻⰴⱏⰽⰻ ⱄⰾⱁⰲⰻⱀⱄⰽⰻⰹ** [Azbukividnêk slovinskiĵ], Rome 1629 • Copies: BA, BAV, BL, BSB[17], CBL, KBC, KHAZU, UUB, etc. • Literature: Tre alfabeti 1985, no. 108; Kruming 1995:68f, no. 34 (detailed description); Burić 1973:839; Kjellberg 1951, no. 24; König 2003 (detailed description); Kempgen 2015b:28–33. Cleminson et al. 2000, no. 81 (detailed description); Crone 1957, no. 19; Ambrosiani 2014:11; Runjak 2010 (17. stolj., no. 1); Alvin 490785[18].

G1631 — MISSALE ROMANVM SLAVONICO IDIOMATE … / **ⰾⰻⱄⱏⰰⰾⱏ ⱃⰻⰿⱄⰽⰻⰹ** [Missal rimskiĵ] … , Rome 1631. • Copies: BAV, KHAZU • Literature: Tre alfabeti 1985, no. 110; Kruming 1995:70–72, no. 35 (detailed description); Sokolová 1997:27f, no. 7; Burić 1973:829; Babič 1999:262ff; Trunte 2009:304ff; Runjak 2010 (17. stolj., no. 4).

G1635 — [Juan de Polanco:] **ⱄⱏⰿⱁⱆⰰⰲⰻⱏⰽ ⱁⰰ ⰵⱆⰵⱄ ⱄⱏⰿⱄⰻⰾⰾⰻⱄⰻⱏⱂⰻⱄⰽⰻⱏⰲ** […] [Ispravnik za erei ispovidnici], Rome 1635 • Copies: BAV, BPF, BSB[19], CBL, LUB, KHAZU, NKČR[20], UUB, etc. • Literature: Tre alfabeti 1985, no. 111; Kruming 1995:72–74, no. 36 (detailed description); Sokolová 1997:29, no. 8; Burić 1973:840; Kjellberg 1951, no. 31, 31a; Runjak 2010 (17. stolj., no. 5); Ambrosiani 2014:13; Alvin 490799[21].

[16] Digital surrogate see http://www.mdz-nbn-resolving.de/urn/resolver.pl?urn=urn:nbn:de:bvb:12-bsb10862379-2.
[17] Facsimile edition see König 2003.
[18] http://urn.kb.se/resolve?urn=urn:nbn:se:alvin:portal:record-490785.
[19] Digital surrogate see http://reader.digitale-sammlungen.de/de/fs1/object/display/bsb10862010_00005.html.
[20] Digital surrogate see https://books.google.cz/books?vid=NKP:3186262888.
[21] http://urn.kb.se/resolve?urn=urn:nbn:se:alvin:portal:record-490799.

G1637 — [Canonical table]. • Copies: BAV • Literature: Tre alfabeti 1985, no. 113; Mrkonjić 1988; Kruming 1995:74, no. 37 (detailed description).

G1648 — BREVIARIVM ROMANVM SLAVONICO IDIOMATE … / **ⷦⷯⷪⷬⷪⷬⷯⷯⷠⷠⷠⷯ ⷖⷯⷬⷪⷭⷯⷠⷬ ⷪⷯⷯⷭⷯⷠⷠⷬⷪⷭⷯⷠⷬⷠ ⷯⷯⷭⷯⷬⷯⷬⷠ** [Časoslovъ rimskiĵ slavinskimъ êzikomъ] … Rome, 1648 • Copies: BAV, BPF, KBC, KHAZU • Literature: Tre alfabeti 1985, no. 118; Kruming 1995:75–77, no. 38 (detailed description); Sokolová 1997:30, no. 9; Babič 1999:270ff; Crone 1957, no. 30; Runjak 2010 (17. stolj., no. 6).

G1688 — BREVIARIVM ROMANVM SLAVONICO IDIOMATE … / **ⷦⷯⷪⷬⷪⷬⷯⷯⷠⷠⷠⷯ ⷖⷯⷬⷪⷭⷯⷠⷬ ⷪⷯⷯⷭⷯⷠⷠⷬⷪⷭⷯⷠⷬⷠ ⷯⷯⷭⷯⷬⷯⷬⷠ** [Časoslovъ rimskiĵ slavinskimъ êzikomъ] … Rome 1688 • Copies: BAV, BPF, KHAZU • Literature: Tre alfabeti 1985, no. 123; Kruming 1995:77f, no. 39 (detailed description); Sokolová 1997:30f, no. 10; Runjak 2010 (17. stolj., no. 7).

G1693 — **ⷯⷯⷢⷬⷯⷭⷯⷠⷠⷯⷠⷠⷯⷠⷭⷯⷬⷯⷠⷠⷯⷠⷭⷯⷬⷯⷠⷠⷯⷠ ⷖⷯⷬⷪⷭⷯⷠⷠⷬⷪⷭⷯⷠⷬⷠ** [Azbukividnêk slovinskiĵ] …, [new edition], Rome 1693 • Copies: BA, KHAZU • Literature: Kruming 1995:78f, no. 40 (detailed description); Sokolová 1997:33, no. 11; Burić 1973:839; Lokmer 2008:175; Runjak 2010 (17. stolj., no. 2).

G1706 — MISSALE ROMANVM SLAVONICO IDIOMATE … / **ⷧⷯⷪⷪⷪⷬⷬ ⷦⷯⷧⷪⷭⷯⷠⷬⷠ ⷸⷬ ⷓⷯⷯⷭ ⷖⷯⷬⷪⷭⷯⷠⷠⷓⷸⷪⷭⷯⷠⷬⷠ** … [Missal rimskiĵ na ezik slovenskiĵ] …, Rome 1706 • Copies: BAV, BPF, KHAZU • Literature: Tre alfabeti 1985, no. 124; Kruming 1995:79f, no. 41 (detailed description); Burić 1973:830; Runjak 2010 (18. stolj., no. 1).

G1707 — **ⷧⷯⷪⷪⷓ ⷯⷬ ⷣⷧⷯⷓⷦⷠⷠⷠⷣⷯⷓ** [Misse za umervšie] … Rome 1707 • Copies: BPF, KHAZU • Literature: Tre alfabeti 1985, no. 125; Kruming 1995:80f, no. 42 (detailed description); Burić 1973:830; Runjak 2010 (18. stolj., no. 2).

G1741 — Missale romanum slavonico idiomate … / **ⷧⷯⷪⷪⷬⷬ ⷦⷯⷧⷪⷭⷯⷠⷬⷠ** [Missal rimskiĵ] … Rome 1741 • Copies: BAV[22], BPF, NUK • Literature: Tre alfabeti 1985, no. 128; Kruming 1995:82–85, no. 44 (detailed description); Trunte 2009:304ff; Burić 1973:830.

G1742 — [Matej Karaman: Pastoral letter] • Copies: RNB • Literature: Kruming 1995:85f, no. 45 (detailed description).

G1767 — **ⷧⷯⷪⷪⷓ ⷯⷬ ⷣⷧⷯⷓⷦⷠⷠⷠⷣⷯⷓ** [Misse za umervšie] [new edition], Rome 1767 • Copies: BAV • Literature: Kruming 1995:92, no. 50 (detailed description); Lokmer 2008:181.

G1789 — [Appendix to G1741] • Copies: BAV • Literature: Kruming 1995:82–85, no. 44 (detailed description); Lokmer 2008:181.

G1791a — Officia sanctorum slavonico idiomate … / **ⷸⷯⷯⷬ ⷪⷠⷠⷦⷠⷠⷯⷬⷯ** [Čini svêtih] … Rome 1791 • Copies: BAV, BPF, KHAZU • Literature: Tre alfabeti 1985, no. 131; Kruming 1995:94–96, no. 52, t. 3 (detailed description); Sokolová 1997:38, no. 17); Burić 1973:833; Runjak 2010 (18. stolj., no. 4).

G1791b — Breviarium romanum slavonico idiomate … pars hiemalis … / **ⷸⷯⷪⷬⷪⷬⷯⷯⷠⷠⷠ ⷖⷯⷬⷪⷭⷯⷠⷬⷠ ⷪⷯⷯⷭⷯⷠⷠⷓⷸⷪⷭⷯⷠⷬⷪ ⷯⷯⷭⷯⷬⷯⷬⷪ** … **ⷸⷯⷪⷪⷠ ⷯⷯⷬⷪⷬⷠⷠⷯⷦ** … [Časoslov rimskiĵ slavenskim êzikom … čast zimovaê …] Rome 1791 • Copies: BAV, BPF, NUK • Literature: Tre alfabeti 1985, no. 132; Kruming

[22] The BAV copy is bound together with G1789 and thus belongs to Kruming's second type.

1995:94–96, no. 52, t. 1 (detailed description); Sokolová 1997:37f, no. 16); Burić 1973:833.

G1791c — Breviarium romanum slavonico idiomate … pars æstiva … / ⱝⱏⱨⱜⱑⱜⱋⱑⱓⱓ ⱊⱑⱐⱜⱝⱔⱏⱐⱑ ⱜⱋⱌⱨⱓⱓⱑⱟⱏⱜⱝⱔⱏⱐⱑⱐ ⱃⱓⱌⱑⱔⱑⱐ … ⱝⱏⱨⱜⱓⱓ ⱋⱌⱃⱓⱓⱟⱏ … [Časoslov rimskiĵ slavenskim êzikom … čast lêtnaê …] Rome 1791 • Copies: BAV, BPF, KHAZU, NUK • Literature: Tre alfabeti 1985, no. 133; Kruming 1995:94–96, no. 52, t. 2 (detailed description); Burić 1973:833; Runjak 2010 (18. stolj., no. 9).

Gxviii.α — [Canonical tables], Rome, end of 18th century • Copies: RNB • Literature: Kruming 1995:99, no. 55 (detailed description).

Gxviii.β–μ — [Missal extracts], Rome, end of 18th century • Copies: RNB… • Literature: Kruming 1995:100–105, nos. 56–66 (detailed descriptions).

B. Latin-script editions[23]

L1627 — Robert Bellarmine: Istvmacenge obilnie navka karstyanskoga …, Rome 1627 • Copies: BAV, BNF • Literature: Tre alfabeti 1985, no. 105; Burić 1973:836.

L1633 — Robert Bellarmine: Navk karstyanski kratak. Sloxen pò naredbi S. Oca Papae Klementa Osmoga […], Rome, 1633 • Copies: BA, BNF • Literature: Burić 1973:836.

L1636 — Juan de Polanco: Ispravnik za erei ispovidnici i za pokornici. Preneſen s'latinskoga yazika, v slovignski. Breve direttorio, per Sacerdoti Confeſſori, e per Penitenti, tradotto da lingua Latina, nella Illirica, Rome 1636 • Copies: BAV, ÖNB[24] • Literature: Tre alfabeti 1985, no. 112; Burić 1973:840.

L1637 — Robert Bellarmine: NAVK KARSTYANSKI Sloxen Po Prisvitlomu Gospodinu Rubertu Bellarminu, Kardinalu S.R.C. I prinapravlen Po zapovidi, S. Skupsctine od razplogenya svete Vire, Rome 1637 • Copies: BNF, BPF • Literature: Burić 1973:836.

L1638a — Meditationes S. Bonauenturæ. To yest BOGOLIVBNA RAZMISCGLIANYA Od Otaystva Odkupglienya Coviçanskoga. S. BONAVENTVRUAE CARDINALA Prenesena V yezik Slovinski […] , Rome 1638 • Copies: AB, NUK[25] • Literature: Tre alfabeti 1985:164, no. *; Burić 1973:840.

L1638b — [Bartol Kašić:] XIVOT GOSPODINA NASCEGA ISVKARSTA / VITA DEL SIGNOR NOSTRO GIESV CHRISTO, Rome 1638 • Copies: BAV, NKČR[26], UUB • Literature: Tre alfabeti 1985, no. 114; Burić 1973:840; Ambrosiani 2014:13.

L1640a — Kalendar iz missala rimskoga i spovidanye pravae virrae …, Rome 1640 • Copies: BAV, BPF • Literature: Tre alfabeti 1985, no. 115; Burić 1973:835.

L1640b — Ritual rimski istomaccen slovinski … Rome, 1640 • Copies: BAV, BPF • Literature: Tre alfabeti 1985, no. 116; Burić 1973:833.

[23] Burić (1973:839, 840) also mentions a 1636 Latin-script edition of Girolamo da Palermo's *Ispoviedaonik* (cf. C1630) and a 1774 Croatian Latin-script *Instructio de Sacramentis Poenitentiae et Eucharistiae*.
[24] Digital surrogate see http://digital.onb.ac.at/OnbViewer/viewer.faces?doc=ABO_%2BZ179357206.
[25] Digital surrogate see https://www.dlib.si/details/URN:NBN:SI:DOC-0V6P1D2Z.
[26] Digital surrogate see https://books.google.cz/books?vid=NKP:3186213843.

L1657 — Juan de Jesús María: Naçin za dobro vmriti …, Rome 1657 • Copies: BAV, BNF • Literature: Tre alfabeti 1985, no. 120; Burić 1973:840.

L1661 — Robert Bellarmine: Nauk karstyanski sloxen po prisvitlomu gospodinu Robertu Bellarminu Kardinalu S.R.C. …, Rome 1661 • Copies: BAV, BL[27], BNF • Literature: Tre alfabeti 1985, no. 121; Burić 1973:836.

L1662 — Robert Bellarmine: Istvmacenye symbola apostolskoga, to yest virrovanya …, Rome 1662 • Copies: BA, BAV, BNF, BPF, NKČR[28] • Literature: Tre alfabeti 1985, no. 122; Burić 1973:836.

L1708 — Robert Bellarmine: Istvmacenge obilnie navka karstyanskoga, … [new edition], Rome 1708 • Copies: BL[29], BPF • Literature: Tre alfabeti 1985, no. 126; Burić 1973:836.

L1709 — Juan de Jesús María: Naçin za dobro vmriti… [new edition], Rome 1709 • Copies: BAV, BPF • Literature: Tre alfabeti 1985, no. 127; Burić 1973:840.

L1789 — Ispovidagne Viere za Garczi promisgliegne Verhu Najposlidnih …, Rome 1789 • Copies: BAV, BPF • Literature: Tre alfabeti 1985, no. 130.

C. Cyrillic-script editions

C1629 — Robert Bellarmine: НАУК КАРСТЊАНСКИИ КРАТАКЪ… Rome, 1629 • Copies: BAV, BL[30], BNF • Literature: Tre alfabeti 1985, no. 107; Cleminson et al. 2000, no. 80.

C1630 — [Girolamo da Palermo:] ИСПОВѢДАWНИК, | сабранъ | из православнiех наꙋчителꙗ | по П. W. Мецрꙋ Иеронимꙋ Панормитанꙋ | […] Принесен оу ꙗзик Босански | […], Rome, 1630 • Copies: BL, BSB[31], KBC, UUB • Literature: Tre alfabeti 1985, no. 109; Sokolová 1997:104f, no. 52; Henkel 1971:347; Burić 1973:839; Kjellberg 1951, no. 27; Cleminson et al. 2000, no. 82 (detailed description); Crone 1957, no. 21; Ambrosiani 2014:12f; Alvin 490794[32].

C1648 — PROFESSIO ORTHODOXAE FIDEI AB ORIENTALIBVS Facienda / ИСПОВѢДАНIЄ ПРАВОСЛАВNОЄ ВѢРЫ ѿ Востѡ́чныхъ твори́мое, Rome, 1648 • Copies: BAV, BC, BPF, KBC, UUB, etc. • Literature: Tre alfabeti 1985, no. 117; Sokolová 1997:117, no. 66; Kjellberg 1951, no. 56; Crone 1957, no. 31; Alvin 490857[33].

C1651 — [Filip Stanislavov:] Авагар [Abagar], [Rome, 1651] • Copies: BAV, BPF, BUB, KBC, UUB, etc. • Literature: Tre alfabeti 1985, no. 119; Rajkov 1979 (detailed description); Crone 1957, no. 32; Ambrosiani 2014:14f, 2015; Alvin 490849[34].

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[27] BL shelfmark 852.f.33.

[28] Digital surrogate see https://books.google.se/books?id=x81jAAAAcAAJ&dq=Istvmacenye+symbola+apostolskoga&hl=sv&source=gbs_navlinks_s.

[29] Digital surrogate see https://books.google.se/books/about/Vberior_explicatio_doctrinæ_Christianæ.html?id=UdNSmgEACAAJ&redir_esc=y.

[30] Digital surrogate see http://books.google.co.uk/books?vid=BL:A0020264409.

[31] Digital surrogate see http://reader.digitale-sammlungen.de/de/fs1/object/display/bsb10597415_00003.html.

[32] http://urn.kb.se/resolve?urn=urn:nbn:se:alvin:portal:record-490794.

[33] http://urn.kb.se/resolve?urn=urn:nbn:se:alvin:portal:record-490857.

[34] http://urn.kb.se/resolve?urn=urn:nbn:se:alvin:portal:record-490849.

C1661 — Robert Bellarmine: ИАУК КАРСТИАНСКИИ КРАТАКЪ [Nauk karstianski kratak] (new edition), Rome 1661 • Copies: BL[35].

D. Multiscriptal editions

M1736 — Filippo d'Azon: Parentalia in anniversario funere Mariæ Clementinæ Magnæ Britanniæ &c. Reginæ […], Rome, 1736 • Copies: BAV, BJ[36], CBL • Literature: Platania 1993:45.

M1739 — Matej Karaman: Bukvar′ slavenskij pismeny … B. Ieronima … / Bukvar′ slavenskij pismeny prepodobnago Kyrilla …, Rome 1739 • Copies: NSK, UBSM[37] • Literature: Tre alfabeti 1985, no. 129; Kruming 1995:61f, no. 43 (detailed description); Runjak 2010 (18. stolj., no. 5); Kempgen 2015a:112–135.

M1753 —Matej Karaman: Bukvar′ slavenskij pismeny … B. Ieronima … / Bukvar′ slavenskij pismeny prepodobnago Kyrilla …, [second edition], Rome 1753 • Copies: BPF, CBL, KBC, NUK, UmUB[38], UUB, etc. • Literature: Tre alfabeti 1985, no. 129; Kruming 1995:86–88, no. 46 (detailed description); Sokolová 1997:34, no. 12; Kempgen 2015a:112–135; Crone 1957, no. 64; Kjellberg 1951, no. 224–228, 228a; Runjak 2010 (18. stolj., no. 6); Alvin 491108[39].

M1784 — Specimen idiomatum et characterum exoticorum […], Rome 1784 • Copies: BAV, BC, BNF, BSB, CUL, KBS, NSB, UUB, etc.[40] • Literature: Lindberg 1973:78, no. 10; Ambrosiani 2012; Alvin 491147[41].

Abbreviations

AB Almedalsbiblioteket, Visby
BA Biblioteca Angelica, Rome
BC Biblioteca Casanatense, Rome
BJ Biblioteka Jagiellońska, Kraków
BL British Library, London
BNF Bibliothèque nationale de France, Paris
BPF Biblioteca "Papa Francesco", Pontificia Università Urbaniana, Rome
BAV Biblioteca Apostolica Vaticana, Rome
BSB Bayerische Staatsbibliothek, Munich
BUB Biblioteca Universitaria di Bologna, Bologna
CUL Cambridge University Library, Cambridge (UK)
CBL Chester Beatty Library, Dublin

[35] BL shelfmark 3505.de.60.
[36] Digital surrogate see https://archive.org/details/jbc.bj.uj.edu.pl.NDIGSTDR021247/mode/2up.
[37] Digital surrogate see http://arhiva.unilib.rs/unilib/o_nama/izlozbe/staribukvari/pdf/6.pdf.
[38] Digital surrogate see https://digital.ub.umu.se/resolve?urn=urn:17a_000124.
[39] http://urn.kb.se/resolve?urn=urn:nbn:se:alvin:portal:record-491108.
[40] At least ten more copies are known, for details see Ambrosiani 2012. For a digital surrogate of parts of a copy at Yale University Library, see https://collections.library.yale.edu/catalog/2014577.
[41] http://urn.kb.se/resolve?urn=urn:nbn:se:alvin:portal:record-491147.

KBS Kungliga biblioteket, Stockholm
KBC Det Kgl. Bibliotek, Copenhagen
KHAZU Knjižnica Hrvatske akademije znanosti i umjetnosti, Zagreb
LUB Lund University Library, Lund
NKČR Národní knihovna České republiky, Prague
NSB Norrköpings stadsbibliotek, Norrköping
NSK Nacionalna i sveučilišna knjižnica, Zagreb
NUK Narodna in univerzitetna knjižnica, Ljubljana
ÖNB Österreichische Nationalbibliothek, Vienna
RNB Rossijskaja nacional´naja biblioteka, St. Petersburg
UBSM Univerzitetska biblioteka “Svetozar Marković”, Belgrade
UUB Uppsala University Library, Uppsala
UmUB Umeå University Library, Umeå

Peer-reviewed article

Modulating Meaning: The Landscape of Russian Verbs of Musical Production

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Abstract

This article investigates thirteen Russian verbs of musical sound production within a cognitive-linguistic framework, focusing on agentivity, event construal, metaphor, and metonymy. Based on corpus data from the Russian National Corpus, we show that Russian musical verbs form a structured semantic domain organized along two cross-cutting dimensions: orientation (performance-oriented vs. sound-oriented) and degree of agentivity (high vs. low). These dimensions yield four recurrent construal types ranging from intentional musical performance to non-agentive auditory perception. The analysis demonstrates that agentivity is systematically redistributed through metonymic shifts from performer to instrument or musical work. In addition, Russian musical verbs connected to such neighboring semantic domains as non-musical sound, communication, speech, emotion, movement, and staged performance. The study contributes to research on auditory semantics by showing how linguistic meaning emerges through systematic shifts in perspective and construal.

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1. Introduction

In this contribution to Festschrift, we investigate a semantic domain that is both central to human experience and personally resonant with Tore's own musical practice: verbs describing musical sound production.

Music is both a physical phenomenon and a socially embedded practice. This article investigates thirteen Russian verbs of musical production ranging from highly general predicates such as *играть (на альте)* to specialized verbs that encode manner (*бренчать, пиликать*), performance type (*концертировать*), or perceptual outcome (*звучать*).

Within the semantic domain of Russian verbs of sound (*глаголы звука* or *глаголы звучания*), existing scholarship typically distinguishes two major subdomains: (1) verbs that denote sounds produced primarily by inanimate objects (e.g., *скрипеть*, *греметь*, *журчать*), and (2) verbs that denote sounds produced by animate beings, primarily animals (e.g., *хрюкать*, *мяукать*) and, more rarely, humans (Šeljakin 1962; Sidorova 1978).

While previous work on Russian sound verbs has focused primarily on inanimate sound sources (Stojnova 2002) or animal vocalizations (Raxilina 2010; Rakhilina et al. 2017), verbs denoting human musical activity have rarely been treated as a unified domain. Musical verbs are typically described in dictionaries as individual lexemes (e.g., Kuznecov 2000). In other words, the music domain with internal structure, usage patterns, or derivational behavior as a whole is not addressed in the scholarship yet. The present study addresses this gap by offering an empirical qualitative analysis of verbs describing musical sound production in Russian based on corpus examples. Adopting a cognitive-linguistic framework, the article asks:

1. How do different verbs construe events of musical production?
2. What are the regular semantic shifts employed in the verbs of music production? What role do metaphor and metonymy play in these shifts?
3. Which neighboring semantic domains are systematically connected to musical production?

In this article we show that Russian verbs of musical production form a coherent semantic domain structured by two cross-cutting dimensions: orientation (performance- vs. sound-oriented) and degree of agentivity (high vs. low). These dimensions yield four recurring construal types, ranging from intentional musical performance to non-agentive auditory perception. Agentivity is systematically redistributed through metonymic shifts from performer to instrument or to the musical work itself. Beyond music, the same verbs occur in neighboring domains such as non-musical sound, communication, speech and emotion. This does not imply a directional process of semantic development; instead, it reflects semantic proximity between related experiential domains in which the same lexical items are conventionally used.

2. Theoretical framework: event construal and agentivity

Music is a part of reality that is both performative and perceptional depending on the speaker's perspective. Talmy (2000) unifies perception and conception under the gradient notion of ception. Talmy distinguishes thirteen parameters, among them ostension, which plays a central role in both visual and auditory modalities. Following Talmy (2000), events can be linguistically construed in different ways depending on which components (agent, process, result, perception) are foregrounded.

Langacker has also proposed a system of broad classes of construal phenomena, such as specificity, focusing, prominence or profiling and perspective (2008: 55-89). These construal phenomena contribute to shifting the listener's attention to particular aspects of a situation or an event.

The event construal of visual perception based on English data was studied by Divjak et al. (2019: 67) who found that "construal affects the spontaneous visual perception of a scene by affecting the order in which the components of a scene are accessed or by modulating the distribution of attention over the components, making them more or less interesting and salient". Similarly, in the situation of playing music within auditory modality, various aspects of the situation can be foregrounded: agent (musician/performer), instrument (piano, viola), piece of music (waltz, song), voice or a combination of them.

Music-related events can be described in different ways in language depending on what the speaker chooses to highlight and where attention is directed. A central parameter in this process is agentivity, defined as the degree to which an event is construed as intentional, controlled, and initiated by a volitional agent (Langacker 2008: 385). In the domain of musical sound production, agentivity interacts systematically with construal choices, shaping whether an event is presented as an action performed by a musician, a process unfolding over time, or a perceptual experience available to a listener.

This framework makes it possible to model musical verbs not as a separate lexicographic description of each verb but as a structured semantic domain in which differences in control, intentionality, and perceptual anchoring play a decisive role.

3. Data and methods

The first step of the study consisted in compiling the list of verbs that, among other things, denote musical sound production in Russian, based on existing lexicographic descriptions (Babenko 1999)[1] and the authors' intuitions. The point of departure was the verb *играть* in its specialized meaning 'to play a musical instrument'. This verb served

[1] Babenko (1999) lists twenty-three verbs of sound production and musical performance. We included the ten most frequent verbs from this list, along with *дудеть*, *музицировать*, and *пиликать*, which are not listed there but are relevant for the present study.

as a central node for identifying a set of related verbs, or "quasi-synonyms", which in actual usage, compete with *играть*, refine its meaning, or describe closely related aspects of musical activity. From this point, the list was expanded to include verbs denoting the use of the voice as an instrument: *петь*, *насвистывать* and *свистеть* as well as verbs referring to professional or staged forms of performance: *исполнять*, *концертитовать*, and *музицировать*.

The network was further enriched with verbs denoting sound production without necessarily implying musicality, but which regularly appear in musical contexts: *барабанить*, *бренчать*, *дудеть*, *звучать, пиликать* and *трубить*. Thus, the network gradually grew from a single basic verb into a coherent group forming a radial category of musical performance.

Once the relevant verbs were identified, attested examples were collected from the Main Corpus of the Russian National Corpus (ruscorpora.ru), with the analysis restricted to thematic subcorpora that are particularly rich in descriptions of music and culture (Nonfiction; Journalism: Leisure and entertainment; Art and culture; Art history; Culturology). The resulting subcorpus contains approximately 28.6 million words.

For each verb, queries generally targeted all forms of the lemma using a wildcard prefix * (e.g., **бренчать*). In cases involving extensive homonymy or morphological overlap, additional exclusion filters were applied to eliminate irrelevant forms, such as verbs *успеть* and *терпеть* for *петь*.

For *играть*, the search was further restricted to constructions with prepositions. However, such queries cannot guarantee the retrieval of every musical instance of *играть*. Conversely, not every occurrence of *играть* with *а* preposition necessarily corresponds to a musical use; non-musical uses (e.g., games, gambling as in *играть в карты*) were filtered out manually during data inspection. Musical uses of *играть* without a prepositional phrase (e.g., *музыка играет*) were not targeted in the search because searches for bare *играть* in the RNC produce a large number of non-musical occurrences, resulting in low precision of the query results. However, the resulting dataset contains occurrences such as *музыка, которую играют в лучшем столичном джазовом клубе*, where prepositional phrase encodes location rather than instrument.

The study focuses on the verbs displayed in Table 1. The Source category indicates the prototypical context associated with a verb within its musical usage. Only musical senses of the verbs are included in the table; other basic meanings are excluded.

Verb	Prefixed verbs in our database	Source category	Raw (IPM)	Total
барабанить 'to drum, to beat (a drum or repeatedly tap)'	*забарабанить, отбарабанить, побарабанить, пробарабанить*	Musical instrument	43 (1,5)	42

Verb	Prefixed verbs in our database	Source category	Raw (IPM)	Total
бренчать ‘to strum (casually), to twang’	*побренчать*	Musical instrument	33 (1.15)	32
дудеть ‘to toot, to blow (on a horn, pipe)’	*задудеть, подудеть*	Musical instrument	18 (0,63)	17
звучать ‘to sound’	*зазвучать, отзвучать, прозвучать*	Performance	4 842 (1,15)	160
играть + *preposition* ‘to play (an instrument)’	*заиграть, наиграть, отыграть, переиграть, поиграть, подыграть, проиграть, сыграть*	Musical instrument	4 746 (165,88)	280
исполнять ‘to perform’	NA	Performance	2 497 (87,27)	160
концертировать ‘to give concerts, to tour as a performer’	NA	Performance	46 (1,61)	45
музицировать ‘to play music’	*помузицировать*	Performance	45 (1,57)	44
насвистывать ‘to whistle (a tune)’	NA	Voice	40 (1,4)	40
петь ‘to sing’	*воспеть, допеть, запеть, напеть, отпеть, пропеть, попеть, перепеть, распеть, спеть*	Voice	5 870 (308,32)	280
пиликать ‘to fiddle, to squeak’	*запиликать, пропиликать*	Musical instrument	24 (0,84)	24
свистеть ‘to whistle’	*высвистеть, засвистеть, посвистеть, просвистеть, пересвистеть*	Voice	295 (10,45)	160
трубить ‘to trumpet, to blow a horn’	*вострубить, затрубить, оттрубить, протрубить, раструбить*	Musical instrument	318 (11,11)	162

Table 1. Verbs taken for the analysis in the present study

All retrieved examples were manually checked to ensure semantic relevance and consistency across the dataset. The final dataset was annotated for agentivity, event construal, syntactic patterns, and semantic extensions. For lemmas with fewer than 100 occurrences, all examples were annotated. For more frequent lemmas, we annotated 160 pseudo-randomly selected examples for lemmas with a smaller number of prefixed variants, and 280 examples for lemmas with a larger number of prefixed variants to account for semantic variability.

4. Semantic grouping of verbs by agentivity and event construal

The analysis of corpus examples reveals that Russian verbs of musical production can be classified into four semantic groups, based on two dimensions emerging from corpus data: agentivity (high vs. low) and orientation (performance-oriented vs. sound-oriented). Differences in construal are attested not only across lexemes but also across alternative constructions involving the same lexeme, indicating that event conceptualization is shaped by both lexical choice and constructional framing. These groups therefore should be understood as corpus-informed semantic categories rather than statistically derived clusters. Figure 1 summarizes four main groups.

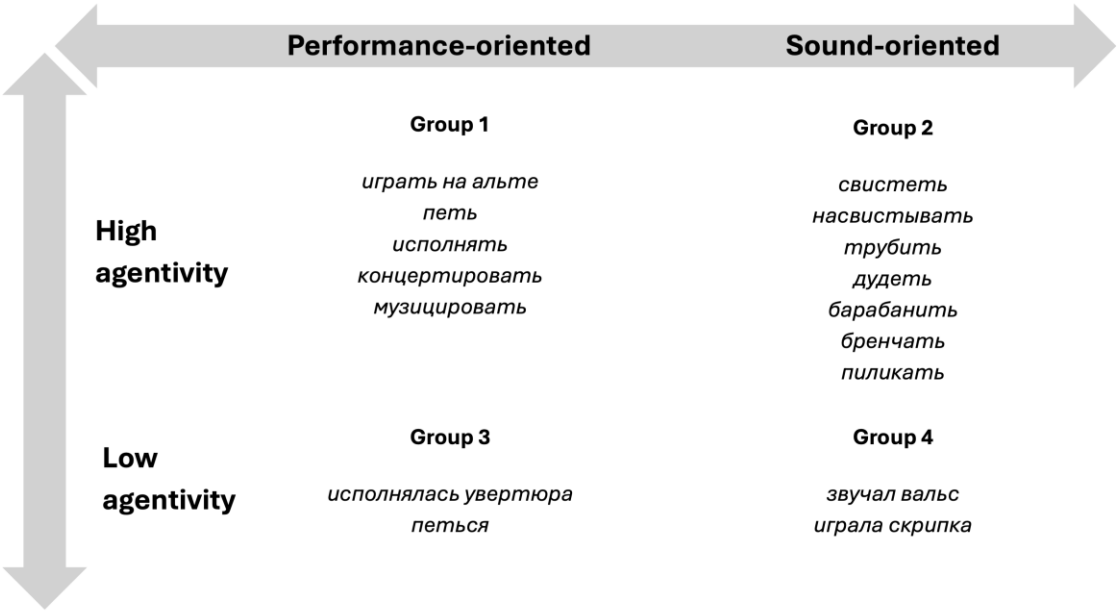


Figure 1. Grouping of Russian musical verbs

The distinction between the four groups captures both whether a predicate profiles a human performer acting within a socially recognized structured practice (performance-oriented) or instead foregrounds the acoustic output and its properties (sound-oriented), and whether agentivity is high or reduced. Crucially, agentivity is not a binary property but a scalar one: it may be high, reduced, or almost entirely absent, as in constructions where sound is construed as emerging autonomously. Furthermore, agentivity is not

determined solely by the verb itself, but also by the construction in which it occurs. Performance- and sound-orientation are likewise scalar rather than categorical opposites, as the degree of orientation varies depending on the verb and the construction in which it occurs. Each group is discussed in detail in the following subsections.

4.1 Group 1: Performance-oriented verbs with high agentivity

This group comprises verbs that construe musical events as intentional, controlled, and culturally structured activities, carried out by a human agent who is fully responsible for the outcome. Rather than merely encoding sound production, they profile music-making as an activity embedded in artistic, professional, or recreational norms. Within the semantic network, this group represents the prototypical construal of musical performance in Russian.

At the center of this group stands *играть*, which functions as the most general and flexible predicate for musical activity. In the musical domain, its prototypical construction is *играть на* [Instrument], attested with a wide range of instruments (*играть на рояле, гитаре, скрипке*). This construction foregrounds handling of the instrument and assumes a certain level of technical skill.

Beyond instrument-centered uses, *играть* allows the Theme to be foregrounded, either in generalized form (*музыка, которую играют в лучшем столичном джазовом клубе*) or with reference to a specific work (*играют над нею нестройный реквием*). It further combines productively with expressions of genre (*играть в стиле диско-фанк*), shifting the focus from a concrete event to a performer's style. These constructions underscore the verb's role as an umbrella predicate capable of integrating multiple facets of musical activity, such as instrument, repertoire, and style within a single lexical frame.

A particularly important subset of constructions brings *играть* close to performance-oriented verbs such as *исполнять* and *концертировать*. Expressions like *играть в группе / в квартете* and uses without an overt instrument (*играть на свадьбе*) construe the activity as giving a performance (*выступать*), often in front of an audience. In such cases, the instrument is frequently encoded implicitly in the agent (*Пианист играет на декабрьских вечерах*). Unlike *исполнять* and *концертировать*, however, *играть* does not normally extend to vocal performance where the voice functions as the sole instrument.

At the same time, *играть* readily applies to theatrical contexts (*играть главную роль*), where the preposition *на* no longer encodes an instrument but instead specifies the venue or occasion (*на московской сцене, на Театральной олимпиаде*). From its musical core, *играть* further extends metaphorically to domains of emotional and psychological influence (*играть на струнах души, играть на низменных инстинктах*).

While *играть* occurs in various contexts, other verbs in the group restrict how the performance is conceptually framed. The verb *концертировать* profiles musical activity as public, professional performance. Unlike *играть*, it does not encode the instrument, the repertoire, or the manner of sound production; instead, it conceptualizes the event holistically as participation in concerts. Corpus data show that *концертировать* is restricted to professional musicians and typically construed as an iterative or habitual activity, referring to a series of performances over time (*концертировать по России, каждый год зимой*). The agent role is obligatory and consistently filled by individuals or groups belonging to the professional musical domain. Notably, *концертировать* does not develop metaphorical extensions, which reinforces its status as a highly specialized, peripheral verb within the network.

In contrast, *музицировать* profiles musical activity as informal and recreational. While it shares high agentivity with *концертировать* and *играть*, it differs sharply in its evaluative and situational framing. *Музицировать* typically denotes non-professional music-making, often situated in domestic or small-group contexts and integrated into broader scenarios of social interaction (*вечера, посиделки, собрались попить чая и помузицировать*). The activity is construed as an open-ended, emphasizing process rather than outcome. Although professional musicians may appear as agents, their activity is framed as private or leisurely rather than public or institutional. Explicit specification of instruments is rare, and the verb shows no tendency toward metaphorical extension, maintaining a stable meaning of informal music-making.

The verb *исполнять* occupies a distinctive position within this group by systematically foregrounding the performed entity rather than the act of sound production or the instrument involved. Its canonical musical construction is [Agent] *исполнять* [Theme], where the theme is a musical work, a part, or a generalized category (*музыка*). Unlike *играть*, *исполнять* unifies instrumental and vocal realization within a single predicate: whether the performance involves playing or singing is inferred contextually (*Виолончелистка исполняла концерт Шостаковича* vs. *Пугачева исполняла свою песню*) rather than lexically encoded in the predicate itself.

The flexibility of Theme enables *исполнять* to bridge music with adjacent performance domains such as theater and cinema (*исполнять роль*), dance (*исполнять испанские танцы*), and, by further abstraction, non-artistic domains where action is construed as the realization of a predefined script or obligation (*исполнять долг, назначение, намерение*). Within the present group, *исполнять* thus represents the most theme-oriented construal of performance, contrasting with *играть*, which balances instrument, agent, and style, and with *концертировать*, which profiles the performance event as a professional practice.

Петь profiles intentional, vocal performance by human agents (artists, ensembles, street musicians), similarly to the verb *исполнять.* This verb is situated within the music production domain, however, there is no musical instrument used for the production. Instead, the human is using the voice (*артист поет*), which can be optionally encoded by the noun phrase in the instrumental case (*поет тонким женским голосом*) or metonymically expressed in the syntactic subject (*сопрано поет*).

Beyond the musical domain, *петь* can extend to inanimate entities (*поет колокол*, *поет ветер*), body parts and inner states (*душа поет*, *сердце поет*). Interestingly, *петь* can be used within the context of playing musical instruments via metaphorical extensions like *поет флейта* or *пропела скрипка,* where the agency is demoted. *Петь* is often embedded in evaluative or ideological discourse (*воспевать* meaning praising, glorifying). These uses shift attention away from controlled action toward perceptual effect and expressive quality.

Taken together, the verbs in this group illustrate different ways of construing high-agentivity musical performance in Russian: from the maximally general and metaphorically productive *играть*, through the professionally specialized *концертировать*, the informally framed *музицировать*, and the strongly theme-oriented *исполнять* to voice-oriented *петь*. Their systematic contrasts show that high agentivity does not entail uniform event construal but rather supports a range of performance profiles differing in publicness, professionalism, thematic focus, and degree of abstraction.

4.2 Group 2: Sound-oriented verbs with high agentivity

Unlike *играть*, which functions as a general and underspecified predicate of musical performance, the verbs in this group construe music-making primarily through the acoustic properties of the sound produced and the manner of its production. While they all presuppose a human agent acting intentionally, they shift the conceptual focus away from performance as a socially structured practice toward how the sound is emitted and how it is perceived, often incorporating an evaluative stance.

A first unifying feature of these verbs is their lexical specialization. Verbs such as *трубить, дудеть,* and *барабанить* are derived from particular instrument types (wind or percussion), while *пиликать* and *бренчать* are onomatopoeic and motivated by sound symbolism. As a result, they encode specific acoustic qualities, such as loudness, sharpness, repetitiveness, or metallic resonance.

A second common property is the prominence of manner and effort. Compared to *исполнять* or *концертировать*, which abstract away from the physical act of sound production, sound-oriented verbs foreground embodied action: blowing, striking, plucking, or producing air pressure. This is particularly clear for *барабанить*, which resists metonymic construals where the instrument itself acts as subject (*барабанит*

барабан is unattested). This resistance suggests that the verb conceptually favors the agentive, effortful action over the instrument's autonomous sound-producing capacity, in contrast to *трубить* or *дудеть*, where metonymic subjects (*труба трубит, дудит рожок*) are fully acceptable.

Evaluation is the third common property for this group. Verbs such as *пиликать* and *бренчать* are inherently evaluative, typically conveying the listener's negative assessment of the performance as annoying, careless, unserious, or unskilled. This evaluation is part of the lexical meaning rather than a pragmatic inference and applies regardless of whether the focus is on the instrument (*бренчать на гитаре, пиликать на скрипке*) or on the musical product (*пиликать мелодию*). By contrast, *трубить* and *дудеть* are evaluatively more neutral in their literal musical uses.

A further shared property is the productivity of metaphorical extensions, though the target domains vary. For *трубить* and *барабанить*, sound production motivates extensions into signaling, public announcement, and ultimately information dissemination or temporal construal (*протрубить истину; оттрубить смену, отбарабанить два года*). In these cases, repetitive or forceful sound is reinterpreted as repetitive, effortful, or obligatory action over time.

For *дудеть*, metaphorical extensions target alignment and error in the domain of speech and cognition (*дудеть в одну дудку, задудеть не в ту дуду*), mapping coordinated musical action onto unanimity or deviation. By contrast, *бренчать* remains largely confined to the sound domain and shows little evidence of metaphorical expansion, while *пиликать* extends into evaluative descriptions of verbal production (*пиликать рифмами*).

The verbs *свистеть* and *насвистывать* occupy a partially overlapping but distinct position within this group. Both involve vocal sound production rather than instrument use and are thus closer to *петь* than to instrumental predicates. However, they differ sharply in aspectual and evaluative profile. *Насвистывать* is strongly associated with light, casual, durative activity, often accompanying motion, and remains almost exclusively literal (*распахивая на ходу двери, шел, насвистывая, Жадов*). *Свистеть*, by contrast, forms a highly articulated semantic network combining neutral sound production, signaling, musical construals, public disapproval (booing), and interactionally loaded evaluations of speech (*не свисти* meaning 'don't lie'). Derivatives of *свистеть* like *высвистеть лауреатов, засвистеть певицу*, and *просвистеть пьесу до дырок* encode negative assessment and public disapproval.

Taken together, sound-oriented verbs with high agentivity form a coherent group characterized by manner-rich construal, sensitivity to acoustic properties, and frequent evaluative stance. While they share intentional human agency with performance-oriented verbs, they diverge systematically in what they profile: not musical performance as a cultural practice, but sound as an embodied, perceptually salient, and socially interpretable phenomenon.

4.3 Group 3: Performance-oriented verbs with low agentivity

The strong thematic orientation of the verb *исполнять* is further reflected in the verb's compatibility with passive constructions (*исполнялась увертюра*), which background the agent. The agent can be explicitly expressed in the sentence (*Раньше они исполнялись просто дуэтом под гитару* <...>) by a noun phrase in the instrumental case (thus grammatically demoted in comparison with an active construction) or omitted (*Песни исполнялись под аккомпанемент балалаечного оркестра г. Андреева и без оркестра*). The reflexive form *петься* systematically suppresses or backgrounds the agent and construes singing as a collectively distributed, habitual, or situation-bound process (*частушки пелись*).

As a result, the *-ся*-verbs *исполняться* and *петься* construe musical performance as an event with low agentivity, where the realization of a piece is presented as occurring independently of a salient human actor, suggesting their placement in a separate group within the performance-oriented domain.

4.4 Group 4: Sound-oriented verbs with low agentivity

The verb *звучать* and the instrument-for-subject construction with *играть* occupy the non-agentive pole of the system. These verbs construe musical and acoustic events as auditory presence, foregrounding sound emergence and perception rather than human action. Agency is systematically backgrounded or eliminated, and the perspective is shifting from the musician/performer to the hearer/audience.

In contrast to high-agentive *играть на рояле,* contexts with metonymically foregrounded instruments, such as *скрипка играет,* highlight the perceived sound by the hearer rather than intentional play. The musician is construed as absent or irrelevant; what is foregrounded is the acoustic event as experienced by a hearer. This perceptual orientation motivates the placement of this construction at the low-agentive pole of the network.

In musical contexts, *звучать* profiles either the musical work (*зазвучал вальс*) or the instrument (*зазвучала скрипка*). Beyond literal sound production, *звучать* extends systematically into the domain of evaluation and interpretation. In expressions such as *звучит двусмысленно, Шекспир зазвучал по-новому* or *звучит голос эпохи*, the verb no longer denotes acoustic emission but assesses how utterances, ideas, or stylistic choices are received. Here, sound functions as a metaphor for interpretive stance.

In contrast to low-agentive *исполняться*, which presents musical performance as a controlled act that brings a work into existence, *звучать* offers a complementary construal in which music, speech, or cultural forms manifest themselves as audible and interpretable phenomena. Across its uses, *звучать* provides a bridge between perception and meaning, allowing Russian to conceptualize understanding, evaluation, and cultural presence in explicitly auditory terms.

4.5 Summary

Figure 2 visualizes the internal structure of a music production event in terms of three core participants: Agent, Theme, and Instrument. For vocal predicates such as *петь, свистеть,* and *насвистывать*, the voice is treated as a subtype of Instrument, reflecting its functional alignment with instrumental sound production. The horizontal axis represents a gradient from high agentivity (left) to low agentivity (right), capturing systematic shifts in how musical events are construed.

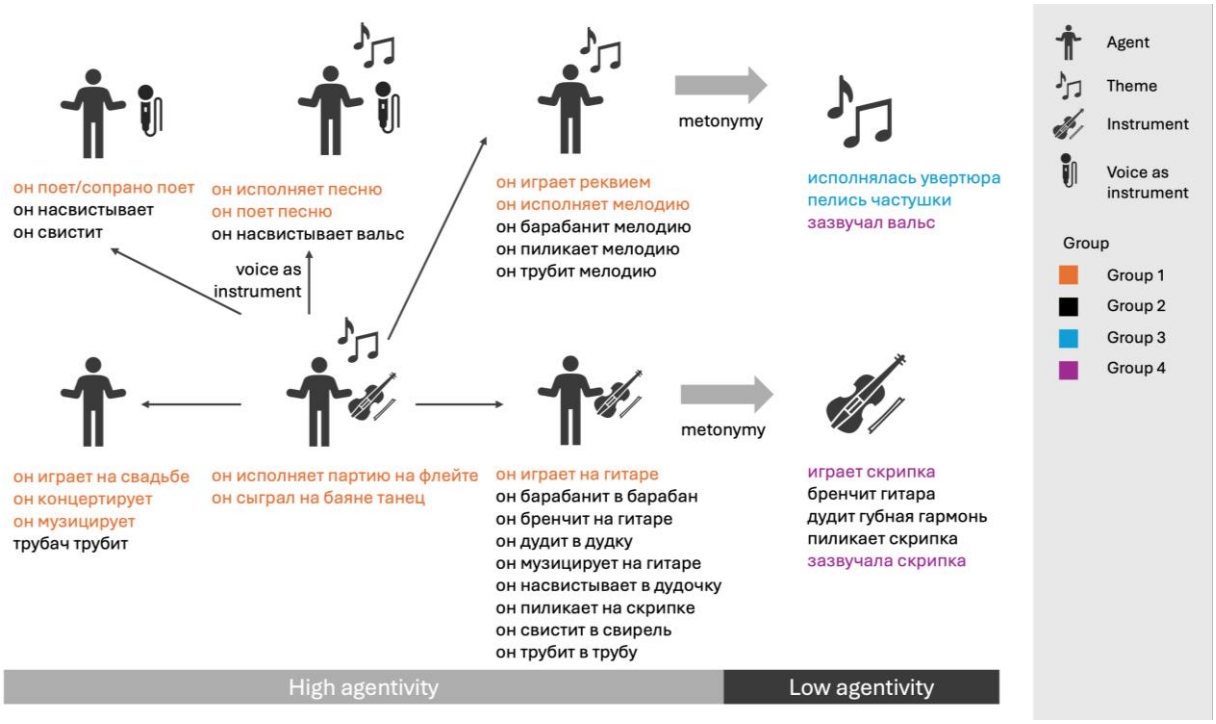


Figure 2. Music production verbs by event construal type

Our analysis suggests that Russian music verbs typically foreground the Agent and the Instrument, yielding the prototypical construal of intentional sound production by a human performer. Other recurrent configurations include Agent + Theme and Agent + Theme + Instrument. By contrast, performance-oriented predicates such as *концертировать* and *музицировать* consistently foreground only the Agent, while the instrument, repertoire, and concrete sound production remain backgrounded. Notably, our database contains no attested cases in which both the Theme and the Instrument are foregrounded while the Agent is suppressed.

A key pattern highlighted in the diagram is the systematic shift from agent-centered construals to construals in which either the Instrument or the Theme functions as grammatical subject. The shift in agentivity is attested both across groups (whereby Groups 3 and 4 are low agentivity groups) and within individual groups, where alternative construals coexist depending on the construction.

Two metonymic pathways are particularly productive. First, the agent → instrument shift backgrounds the human performer while promoting the sound source, as in *он бренчит на гитаре → бренчит гитара*. Although the agent is no longer syntactically expressed, human agency remains conceptually accessible. Second, the agent → theme shift construes music itself as the source of activity: *оркестр исполняет увертюру → исполнялась увертюра*.

Taken together, our findings reveal that Russian musical verbs form a structured semantic network. High agentivity supports multiple construal options: performance-, sound-, instrument-, and theme-oriented, while low agentivity emerges through systematic metonymic shifts.

5. Prepositional variation

Since Russian musical verbs occupy overlapping areas of the semantic network, prepositional variation in encoding the instrument role follows naturally from differences in event construal. The summary of typical constructions is provided in Table 2.

***на* [Instrument]**	***в* [Instrument]**
играть	—
исполнять	—
пиликать	—
бренчать	—
дудеть	*дудеть*
—	*трубить*
—	*барабанить*

Table 2. Marking of Instrument with music production verbs in our database

The construction *играть на* [Instrument] serves as the default pattern for instrument-mediated musical performance. Other performance-oriented verbs align with it to varying degrees. *Исполнять* can combine with *на* when an instrument is relevant but often omits it when the musical work is foregrounded, while *музицировать* typically appears without an instrument and only rarely with *на*, reflecting its holistic construal of music-making (*музицировал на гитаре*).

Sound-oriented manner verbs show greater flexibility. *Пиликать* and *бренчать* strongly prefer *на*, similarly to *играть на*. *Дудеть* alternates between *в* and *на*: *в* highlights the physical channel of sound production (*в дудку*), whereas *на* aligns the verb with conventional instrumental playing (*на саксофоне*). *Трубить* strongly prefers *в*, reinforcing its orientation toward directed airflow. *Барабанить* alternates between *в*

for musical uses (*в барабан/бубен*) and *по* for non-musical sounds (*барабанить по столу*).

Several verbs systematically lack instrumental marking. *Петь, концертировать, исполняться*, and *звучать* do not license instrument complements, as they foreground the musical work or sound event rather than instrumental action. *Свистеть* and *насвистывать* are usually used without instrument, though rare examples are attested. In that case, prepositions can vary: *свистеть в свисток/зубы* vs. *свистеть на флейте*, *насвистывать в дудочку* vs. *насвистывать на мундгармонике*.

Overall, prepositional patterns reflect differences in how musical events are construed: as controlled instrumental action (favoring *на*), embodied sound emission (favoring *в*), or autonomous acoustic events (omitting instrument). However, в/на prepositional variation with music verbs needs further research.

6. Neighboring semantic domains of musical production

Based on the attested uses of the Russian verbs of musical production examined here, musical production is embedded in a dense network of closely adjacent semantic domains. These neighboring domains are not accidental but recur systematically across multiple verbs, indicating stable patterns of semantic association. Together, they reveal how musical production relates to sound, communication, performance, and experience more broadly, visualized in Figure 3.

The closest and most pervasive neighboring domain is **Non-musical sound**. Verbs associated with music frequently occur in situations where no musical structure is involved, provided that the acoustic profile is salient. Thus, *барабанить, бренчать, пиликать, свистеть,* and *дудеть* are regularly used for natural phenomena (*дождь барабанит, ветер свистит*), animals (*пиликают насекомые, птицы свистят*), and mechanical sources (*мотор бренчит, паровоз свистит*). These uses are motivated by acoustic similarity rather than by agency or intentionality: musical sound functions as a reference point for categorizing other auditory events.

A second core neighboring domain is **Signaling**. Several verbs of musical production are also used for intentional sound that is used to attract attention or convey information. Verbs *трубить* and *свистеть* denote literal signals (*трубить в рог, свистеть кому-то*), public announcements (*протрубить победу*), and the dissemination of information (*трубить о чём-то, раструбить на весь мир*). In these cases, sound is reinterpreted as message: loudness, repetition, and reach map onto informational scope and publicity, allowing musical action to structure the domain of communication.

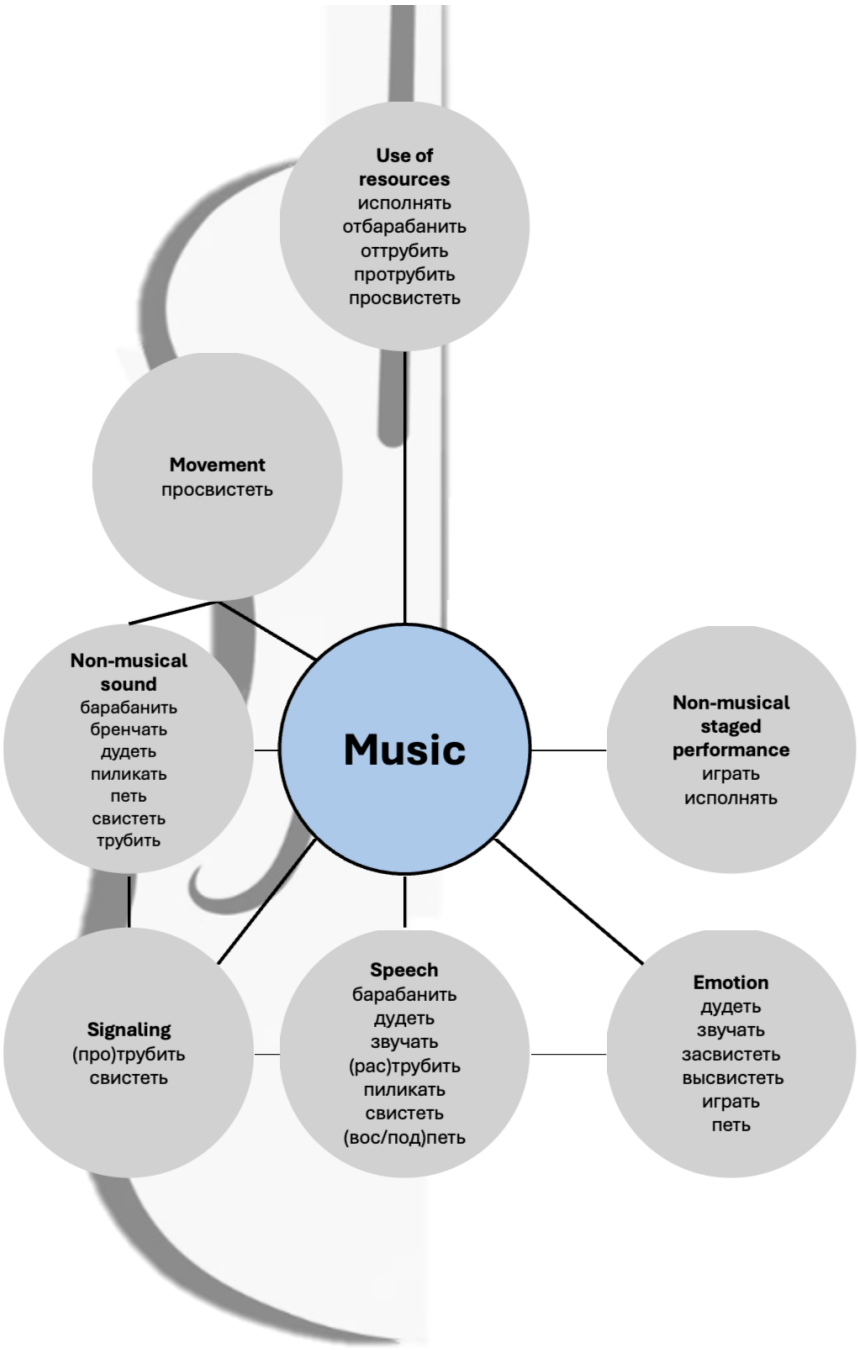


Figure 3. Neighboring semantic domains of musical production. The central circle represents the Music production semantic domain. This domain is covered by all verbs in the set. The surrounding circles represent adjacent semantic domains. We specify the verbs that are used in these domains. Lines represent conceptual connections among domains.

Closely related is the domain of **Speech**, particularly in its negatively evaluated forms. Musical verbs are frequently used to construe speech as sound rather than as propositional content. Expressions such as *барабанить в уши* and *дудеть в одну дудку* emphasize monotony, insistence, and sound intensity, *пиликать рифмами* highlights aesthetic failure, and colloquial *не свисти* (meaning ‘don’t lie’) evaluates speech as

empty or unreliable. Here musical production provides a model for viewing speech as rhythmic, repetitive, or irritating.

Musical production also neighbors the broader domain of **Non-musical staged performance**. Beyond music, verbs *играть* and *исполнять* are associated with theatrical performance (*играть роль, исполнять роль*), and dance (*исполнять танцы*). The shared conceptual core is not sound production but structured public realization under conditions of social visibility and evaluation.

A more specialized but robust neighboring domain involves the **Use of resources**, such as time, work, and effortful activity. Prefixed forms such as *оттрубить, отбарабанить,* and *просвистеть* denote completing a work shift (*оттрубить восемь часов*), serving a required term (*отбарабанить два года*), or spending and losing time or resources (*просвистеть деньги, поэзия отзвучала слишком рано*). These meanings arise from construing repetitive musical action as sustained effort with duration and an endpoint, allowing sound production to structure temporal experience.

Musical verbs also overlap with the domain of **Emotion** and psychological influence, though more selectively. Expressions like *играть на струнах души* or *играть на инстинктах* conceptualize emotional manipulation as musical performance, while *звучит двусмысленно* or *звучит голос эпохи* use sound as a model for evaluative and ideological resonance. Emotion is thus treated as a resonating medium responsive to skilled "playing."

Finally, musical verbs intersect with **Movement** and bodily activity, especially in the case of *свистеть*. Whistling frequently accompanies locomotion and action (*свистеть на ходу, просвистеть мимо ушей*), contributing to characterization rather than constituting a focal event. This adjacency is grounded less in metaphor than in habitual co-occurrence and embodied experience, reflecting how musical sound integrates into everyday action.

Taken together, these neighboring domains highlight stable conceptual links between musical production and the domains of sound, communication, performance, time, emotion, and movement in Russian. Musical production thus serves as a salient experiential reference frame within a broader semantic network.

7. Conclusions

Our study has demonstrated that thirteen Russian verbs of musical production form a structured semantic domain. These verbs participate in a coherent network that systematically modulates how musical events are linguistically conceptualized, whether as intentional human action, embodied sound production with particular sound properties, or perceptual experience.

First, we identified two intersecting dimensions that structure this domain: orientation (performance-oriented vs. sound-oriented) and degree of agentivity (high vs. low).

Together, these dimensions yield four groups. Group 1 comprises performance-oriented, high-agentivity verbs such as *играть*, *петь*, *исполнять*, *концертировать*, and *музицировать,* which construe music as a public performance or private recreational practice. Group 2 comprises sound-oriented, high-agentivity verbs (*трубить*, *дудеть*, *барабанить*, *бренчать*, *пиликать*, *свистеть*, *насвистывать*), which shifts attention to the manner of sound production, acoustic properties, and listener evaluation, while still with an active control of an Agent. Low-agentivity construals in Group 3 arise through systematic grammatical and semantic mechanisms: passive constructions with *исполняться* and *петься* background the performer while retaining a performative frame, whereas *звучать* in Group 4 construes hearer-oriented perception of music performance and foregrounds the Theme.

Second, two metonymic shifts are particularly productive in lowering agency: the agent → instrument shift, which promotes the sound source while keeping agency conceptually accessible (*бренчит гитара*), and the agent → theme shift, which construes music itself as the locus of activity (*исполнялась увертюра*). These patterns demonstrate that musical verbs provide speakers with flexible resources for redistributing attention across participants in an event.

Third, our analysis shows that the musical production domain is systematically connected to a wide range of neighboring semantic domains. Across multiple verbs music is connected to non-musical sound and noise, signaling and information transfer, speech, public performance, the use of resources like time, money etc., emotional influence, and motion. These domains are connected via metaphoric extensions in acoustic similarity, repetition and effort, public audibility, rhythmic structure, and resonance.

From a theoretical perspective, the study contributes to cognitive linguistic research on sound and perception by demonstrating that auditory events are subject to the same fine-grained construal variation. By integrating agentivity, construal, metaphor, and metonymy within a single empirical domain, the article shows how linguistic meaning is modulated through systematic shifts in perspective rather than through isolated lexical changes.

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Peer-reviewed article

Variation in first person singular non-past forms of new English borrowings into Russian second conjugation verbs

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Abstract

The article examines a sample of nineteen new Russian second conjugation loan verbs with English stems ending in labial and dental consonants and the cluster /st/ (such as *strimit'* 'to stream', *kommentit'* 'to comment', *frilansit'* 'to freelance', and *postit'* 'to post'), and to what extent their first person singular non-past (1 SG) forms undergo normative Russian consonant alternations in the writings of internet users. According to earlier studies (2010–2016), labial stems did not pose problems (alternations, or transitive softening, occurred most of the time), whereas in verbs with dental stems and stems ending in consonant clusters, the 1SG forms largely instantiated plain softening.

To find out if there have been any changes in the tendencies of using transitive softening vs. plain softening, I conducted a series of Google searches 2020–2025 to obtain data on the same verbs from different times. My findings corroborate the results of earlier studies when it comes to stems in different types of consonants and ease of adjusting to the standard consonant alternations. Thus, dental stems and the cluster -st are less easily adjusted than labial stems. However, the results show a clear trend in most of the verbs in my sample: they have gradually moved towards more transitive softening in their 1SG non-past forms and now follow the pattern of normative Russian to a very high degree, although a few verbs still show considerable variation between transitive and plain softening (e.g., *kopipastit'* 'to copy and paste'). Also, a few t- and s-verbs (*čatit'sja* 'to chat'; *frilansit'* 'to freelance') seem to have basically settled with plain softening.

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1. Introduction

Since the 20th century, new loan verbs with English stems are frequently formed using the verbal suffix -i- (Sokolova, Birzer, Ignateva & Kibisova 2025). This means that they will belong to the second conjugation, whose stems ending in the labial and dental consonants /m, p, b, f, v, t, d, s, z/ or the cluster /st/ normally undergo consonant alternations to /ml', pl', bl', fl', vl', č/šč, ž/žd, š, ž, šč/ in the first person singular non-past (1SG) before the ending -u, whereas those ending in the non-labial sonorants /n, r, l/ do not change but are softened. This article examines the utilization on the internet of 1SG forms of a sample of new second conjugation loan verbs with English stems and to what extent the above-mentioned consonant alternations appear. As I will demonstrate, while there is variation, many verbs are gradually adopting the traditional alternations.

The well known history behind the consonant alternations in second conjugation verbs is pedagogically described by Tore Nesset (2015:139, 231–234) in terms of j-palatalization, a sound change caused by a following /j/. In the Common Slavic class of verbs from which today's second conjugation derives, the thematic vowel turned into /j/ before the vowel of the 1SG ending. The resulting cluster of a consonant + /j/ underwent j-palatalization and thus resulted in the consonant alternations of today's second conjugation verbs.

In Nesset's (2008) cognitive linguistic study of the morphology-phonology interface in normative Russian verb inflection, the second conjugation consonant alternations (termed transitive softening) are analyzed as a vehicle for conveying non-past tense as well as first person singular. Three schemas for present tense (and imperative) forms with V(owel)-initial endings yield three competing candidates for the 1SG form of, for example, *videt'* ('to see'): [vʲízʲ+u] (transitive softening), [vʲídʲ+u] (plain softening), and [vʲíd+u] (no alternation). The interaction between the schemas resolves the competition in favour of [vʲízʲ+u]. That is, a second-order schema specifies that the past form stems of verbs that include the suffix [i] or [e] (absent in the 1SG form) undergo transitive softening before the non-past ending [u]. The candidate [vʲídʲ+u] (manifesting plain softening alternation, the default pattern for V-initial non-past tense endings) is blocked by the [u]-ending through interaction with the schema with no alternation ([vʲíd+u]).

Most second conjugation verbs are well adjusted to the pattern described above. There are, however, so called defective verbs that are said to lack the 1SG form in normative standard Russian. These verbs have attracted the interest of numerous linguists (for some more recent studies, see, e.g., Baerman 2008; Moskvin 2015; Pertsova & Kuznetsova 2015; Pertsova 2016; Sims 2017). A verb frequently discussed is *pobedit'* ('to win'), for which the new *Bol'šoj akademičeskij slovar'* (2011, vol. 17, s.v. *pobeždat'*) still notes a paradigmatic gap for 1SG. However, the forms *pobedju* (with

plain softening), *pobeždu* (Church Slavonic transitive softening) and *pobežu* (transitive softening) are attested in the Russian National Corpus (www.ruscorpora.ru) at least in the Main, National media, and Social networks subcorpora, mostly when text producers comment on the difficulty of choosing a form. Gridina, Konovalova and Burceva (2013:369) note that the forms *pobedju* and *pobežu* may be used jokingly in spoken and literary language. Another verb that usually appears in the literature on defective verbs and paradigmatic gaps is *pylesosit'* ('to hoover'), which for a long time also was said to lack 1SG, whereas speakers would use *pylesosju* or *pylesošu*. Today all dictionaries on the site Gramota.ru listing this verb give the 1SG form *pylesošu*, but the new *Bol'šoj akademičeskij slovar'* (2012, vol. 21, s.v. *pylesosit'*) gives both alternatives and further notes that *pylesosit'* was first codified in a dictionary of new words in 1971. Thus, new words may take time to adjust to the normative pattern of transitive softening, and alternative forms with plain softening may occur in parallel or compete with the forms that comply with the normative pattern. Historically some 1SG forms with plain softening were acknowledged (Baerman 2008), and even today plain softening, unifying the stems of the whole paradigm into a single form, occurs in some dialects and is not uncommon in non-standard Russian (Bernštejn [1986] 2000:305–306; Moskvin 2015:223).

When it comes to the type of loan verbs under scrutiny in this article, several different 1SG forms are attested. Just to mention one example: for the verb *frendit'* ('to friend') Plungjan (2010) lists four different forms: *frenžu* (transitive softening), *frendju* (plain softening), *frendžu* and *frendlju* (mixed). As mixed types of softening (non-standard innovations or "incorrect" alternations) are of very low frequency compared to both standard alternations and lack of alternation (Slioussar & Kholodilova 2013:257), I will concentrate on transitive and plain softening. Earlier research has been preoccupied with aspects of the new borrowings in a single period, i.e. the time when the data were collected. By contrast, I have studied the use of 1SG forms of certain new borrowings from the first analyses I could find up to the present (2025). My research questions are: Which of the examined verbs favour transitive softening? Are there verbs that favour plain softening? Are there verbs with varying or competing forms? Have the preferences changed over time?

The rest of the article is structured as follows. In section 2, earlier studies on recent loan verbs are discussed. Section 3 describes my material, analysis, and results. In section 4, I discuss the results of the present study, comparing them with earlier results. Section 5 offers some broader conclusions from the study.

2. Earlier research

Earlier research has examined 1SG non-past forms of new borrowings in the context of the characteristics of Russian internet language and of problems in verb inflection that cause processes of leveling or paradigmatic gaps.

The earliest account of variegated 1SG forms in new second conjugation verbs with English stems that I have been able to find is Plungjan's handout (?) on internet language at the University of Bergen (2010). Plungjan notes a great variety of forms, fluctuation between transitive and plain softening, and in addition contamination of models of alternation. He presents numbers of occurrences of the 1 SG forms he found for the verbs *postit'* ('to post'), *frendit'* ('to friend'), *kommentit'* ('to comment'), *fludit'* ('to flood'), *flejmit'* ('to flame'), and *banit'* ('to ban') both in the simplex verbs and with different prefixes (when, where and how the searches were done is not described). The raw numbers for simplex *postit'*, *frendit'*, *kommentit'* (verbs that also appear in my material) are as follows: *pošču/posču* (4,200), *postju* (3,400); *frenžu* (190), *frendju* (830), *frendžu* (16), *frendlju* (14); *kommenču* (1,430), *kommentju* (1,030). As the title of the relevant subsection of the handout states, Plungjan sees this variation in forms as a breakdown of the system of transitive softening in internet language.

Slioussar and Kholodilova (2013) examine novel Russian second conjugation verbs in a larger study of paradigm leveling processes in four different verb classes, processes that often involve the omission or distortion of standard consonant alternations in non-standard innovative forms. As Russian corpora contain very few non-standard forms, the authors used Yandex to search for 82 novel second conjugation verbs (of English origin) with stems that should undergo alternation. These searches can have been conducted no later than 2011 (the article is based on a paper given in 2011). Slioussar and Kholodilova found that many verbs might lack alternations in the first person singular; less frequent verbs lacked alternations more often; stems ending in obstruent clusters caused more problems; and verbs with stems ending in labials rarely lacked alternations. They searched for 1SG forms both with the "correct" alternations (i.e., transitive softening) and "without them" (presumably with plain softening) and counted the frequencies, limiting themselves to the 100 first occurrences for frequent verbs (Slioussar and Kholodilova 2013:247–248). Below I cite Slioussar's and Kholodilova's numbers for the verbs that are also included in my study (the first figure is the number of forms with transitive softening)

(1) *nubit'* ('to noob') – 100 | 0
folovit' ('to follow') – 99 | 1
instagramit' ('to use Instagram') – 98 | 2
strimit' ('to stream') – 98 | 2
bekapit' ('to back up') – 95 | 5
serfit' (to surf') – 35 | 65
jutubit' ('to use YouTube') – 36 | 13
postit' ('to post') – 77 | 33

kopipejstit' ('to copy and paste') – 14 | 86
frendit' ('to include in the friends list') – 86 | 14
kommentit' ('to comment') – 75 | 25
apgrejdit' ('to upgrade') – 52 | 48
brauzit' ('to browse') – 18 | 82
frilansit' ('to freelance') 9 | 91
čatit'sja ('to chat') – 2 | 98

Slioussar and Kholodilova (2013:249) also present percentages for three different groups of verbs as wholes. Table 1 displays the ratios of 1SG alternations vs. lack of alternation in frequent and infrequent verbs with stems in labials, obstruent clusters and other stems (dentals). Statistical analyses reached significance in all comparisons except the difference between frequent and infrequent verbs with stems in obstruant clusters.

Alternations	Labials		Obstruent clusters		Other stems (dentals)	
	frequent	infrequent	frequent	infrequent	frequent	infrequent
Yes	90.8%	82.5%	**37.7%**	**32%**	58.2%	32.8%
No	9.2%	17.5%	**62.3%**	**68%**	41.8%	67.2%

Table 1. Ratios of 1SG forms with and without alternations in verbs with different types of stems (Slioussar & Kholodilova 2013:249)

Magomedova and Slioussar (2017) provide an account of several types of non-standard stem-final consonant mutations (or lack of mutation) that occur on the internet, viz. in 1SG verb inflection, comparative forms of adjectives, and diminutive nouns. They adopt a special sublexical grammar approach to account for the fact that novel words may not follow the same pattern as other words, thus "assuming that speakers may have specific grammars for subgroups of words that have a common property" (Magomedova & Slioussar 2017:238). They argue that in non-standard Russian, faithfulness to the stem gets promoted so that speakers may, for instance, avoid consonant alternations or add suffixes while retaining the final consonant of the stem (Magomedova & Slioussar 2017:255). Their discussion of 1SG forms exemplifies the new approach using data from Slioussar and Kholodilova 2013.

Pertsova (2016) used recently borrowed second conjugation verbs to test the hypothesis that defectiveness (paradigm gaps) is synchronically tied to dental but not to labial alternations. She used 56 new borrowings (many from Slioussar's and Kholodilova's list) in a Google search (July 2014, limited to Russian language and region Russia). Though aware of the fact that web data are noisy and search engine counts imprecise, she still thinks that emerging clear patterns are unlikely to be accidental. Pertsova's results confirm the difference between labial and dental stems: labial stems mostly had the expected alternations, whereas dental stems were highly diverse. However, stems in -f behaved differently from other labial stems: there was a negative correlation between frequency and proportion of alternations – more frequent

verbs were less likely to alternate, e.g. the most frequent f-verb *serfit'* (more than 3,000 hits) had only 35% 1SG with alternation. According to Pertsova and Kuznetsova (2017), the fact that the labial alternation involves epenthesis but does not alter the consonant of the stem is a likely explanation for the higher productivity of labial alternation compared to the phonological opacity of the stem-altering dental alternations.

In a large psycholinguistic study on palatalization (transitive softening) in the Russian verb system by Kulinich, Royle and Valois (2016), one of the experiments was a written production task involving new second conjugation loan verbs. Twenty-three adult Russian speakers (average age 21 years, SD = 3.6) were asked to produce 1SG non-past forms of 9 verbs with stems ending in the dentals -t, -d, and -s. Alternation was used in only 51.66% of responses, but there was considerable variability between items and between subjects. The variability between individual verbs is not discussed, but the percentage of palatalization by each participant is displayed in a figure (Kulinich et al. 2016:349). Palatalization ranged from participants who produced nearly 90% palatalization to those who were just above 20% (SD = 30.3). According to the authors, only 51.66% of palatalized forms on average suggests that either the loanwords are not fully integrated or that pressure comes from the rest of the non-past paradigm where no forms are palatalized.

Earlier studies thus demonstrate that 1SG forms of newly borrowed second conjugation verbs are characterized by variability, tendencies of leveling, and similarities to standard Russian verbs with 1SG non-past gaps.

3. Google searches and results

To find 1SG non-past forms of new second conjugation verbs for the present study, for the same reasons as Slioussar and Kholodilova (2013) and Pertsova (2016), I turned to the internet, while keeping in mind the reliability problems of this method. The Russian National Corpus nowadays includes a social networks subcorpus, but this does not help much. Although all except one of the verbs I examined are attested, more than half of them have no occurrences of 1SG forms or only one.

I thus conducted a series of Google searches over a five year period to obtain data on the same verbs from different contexts and times. The first search had no limitations of time, language, or region. It was undertaken in June 2020 with a few additional searches about one year later. Starting with a longer list of new second conjugation verbs, a search for infinitives was conducted to get an idea of the general frequency of the verbs. Fifteen verbs with 5,000 or more hits of the infinitive (2020) and another four verbs (2021) were further examined through searches for exact phrases of the type "ja 1SG form with transitive softening" and "ja 1SG form with plain softening". Verbs with at least one attestation of "ja 1SG form" were included in the material. Raw numbers for the two types of 1SG forms and percentages were counted.

The verbs in (2) ended up in the material (for two verbs alternative spellings were checked):

(2) **Labial stems:** *strimit'* ('to stream'), *instagramit'* ('to use Instagram'), *bėkapit'*&bekapit' ('to backup'), *jutubit'*[1] ('to use YouTube'), *nubit'* ('to noob'), *follovit'*&*folovit'* ('to follow'), *sërfit'* ('to surf'), *selfit'sja* ('to take a selfie')
Dental stems: *čatit'sja* ('to chat'), *kommentit'* ('to comment'), *apgrejdit'* ('to upgrade'), *frendit'* ('to friend'), *frilansit'* ('to freelance'), *autsorsit'* ('to outsource'), *brauzit'* ('to browse'), *relizit'* ('to release')
Consonant cluster -st: *postit'* ('to post'), *repostit'* ('to repost'), *kopipastit'* ('to copy and paste').

I will not present these results in detail but only comment on the general tendencies in the three groups of verbs. In labial stems, the transitive softening type totally dominated (nearly 100%), except for *jutubit'* (57% – four tokens out of only seven attestations) and *sërfit'* (67% of 2,118 attestations). Pertsova's (2016) observation about stems in -f was supported: the more frequent verb *sërfit'* alternated less (67%) than the less frequent *selfit'sja* (91%). The results for the dental stems were varied: all 1SG forms of *čatit'sja* were tokens of plain softening, whereas the other verbs with stems in dental plosives had considerably more tokens of transitive softening (80–85%); the verbs with stems in dental fricatives showed the opposite pattern of considerably more tokens of plain softening (from 71% (*relizit'*) to 97% (*autsorsit'*). As for the verbs with stems in the consonant cluster -st, *postit'* and *repostit'* instantiated transitive softening on average 85% of the time, while *kopipastit'* attested only 39% tokens of transitive softening. Thus, there was variation within and between groups of stems as well as in individual verbs.

To find out whether there has been any change or development during the last few years, I undertook new searches for 1SG forms of the same verbs in the Fall of 2025. As Google had changed so that the results given to search strings like "ja 1SG form" now included *ja* followed by any form of the verb, I tried searches using the 1SG forms only with double quotation marks. Checking the first few pages for each form (if there were many pages), I saw that for the most part the results were clean and could be used (exceptions were the forms *jutubju* and *instagramju* that gave almost only noise, so I checked all instances). Thus, I conducted searches for 1SG forms with transitive and plain softening of all verbs in (2), with the difference that I performed separate searches for *sërfit'* and *serfit'*. Two different searches were conducted for the period 1/1/2021–9/30/2025, one (2025a in tables 2–5) with no limits on language or region (for better comparison with my 2020/2021 results, and possibly with Slioussar & Kholodilova

[1] An anymous rewiever asked about the alternative spellings *jutjubit'* and *jut'jubit'*. These were not considered by Slioussar and Kholodilova (2013), nor by me in 2020/2021. Searches for 1SG forms with the same limitations as in my two 2025 searches gave altogether 3 hits, and only in the search with no other limitations than time: *jutjublju* (2 hits) and *jut'jublju* (1 hit).

2013), and one (2025b in tables 2–5) limited to Russian language and region Russia (for better comparison with Pertsova 2016).

Table 2 presents the results for verbs with labial stems. The results of both searches are very similar to those of the 2020/2021 search with nearly 100%[2] occurrence tokens of transitive softening for most verbs, which in the 2025a search also pertains to *jutubit'*. However, in the 2025b search *jutubit'* has only 2 attestations and *nubit'* 7, so that one token each of plain softening lowers the percentages of transitive softening to 50% and 86%, respectively.

Verbs with labial stems	**1SG Transitive softening**				**1SG Plain softening**			
	Raw number		**Percent**		**Raw number**		**Percent**	
	2025a	**2025b**	**2025a**	**2025b**	**2025a**	**2025b**	**2025a**	**2025b**
strimit'	393,000	29,000	**99.94%**	**99.98%**	164	7	0.06%	0,02%
instagramit'	98	6	**100%**	**100%**	0	0	0%	0%
bėkapit	230	153	**98%**	**99%**	5	2	2%	1%
bekapit'	79	37	**100%**	**100%**	0	0	0%	0%
jutubit'	68	**1**	**98.5%**	**50%**	1	**1**	1.5%	50%
nubit'	1070	**6**	**95.5%**	**86%**	51	**1**	4.5%	14%
follovit'	304	54	**100%**	**100%**	0	0	0%	0%
folovit'	211	52	**99.5%**	**98%**	1	1	0.5%	2%
sërfit'	300	76	**79%**	**54%**	79	65	21%	46%
serfit'	904	60	**32%**	**62%**	1960	37	**68%**	38%
selfit'sja	79	**3**	**65%**	**60%**	43	**2**	35%	40%

Table 2. Transitive vs. plain softening in second conjugation 1SG forms of labial verbs (2025a Google 2021-01-01–2025-09-30, no other limitations; and 2025b Google 2021-01-01–2025-09-30, language Russian, region Russia)

As in earlier studies, the verbs with stems in -f diverge from the dominant labial pattern. The possibility to have separate results for *sërfit'* and *serfit'* yielded the rather unexpected outcome that in the 2025a search, transitive softening was preferred for *sërfit'* (79%), but plain softening for *serfit'* (68%), and thus the ratio of transitive softening (32%) was close to that of Pertsova's (2016) study (35%). However, in the 2025b search, both for *sërfit'* and *serfit'* the majority of 1SG forms are tokens of transitive softening (54% and 62%, respectively), which is, however, less than in the 2020/2021 search (67%). The less frequent f-verb *selfit'sja* demonstrates lower ratios of transitive softening in the 2025 searches (65% and 60%) than in the 2020/2021 search (91%). The raw numbers are, however, extremely low (3 and 2) in the 2025b search.

Table 3 displays the results for verbs with dental stems. Among the verbs with dental plosives, *čatit'sja* still stands out as the verb for which plain softening is by far the most frequent choice (98%) in both searches, despite a few (4 and 2) tokens of transitive

[2] As it was not possible to undertake statistical analyses of the results for all verbs due to too low numbers of attestations of some forms, only percentages were calculated.

softening. However, for the other t- and d-verbs, transitive softening is clearly preferred in both searches (77%–99% and 83%–100%).

Verbs with dental stems	1SG Transitive softening				1 SG Plain softening			
	Raw number		Percent		Raw number		Percent	
	2025a	2025b	2025a	2025b	2025a	2025b	2025a	2025b
čatit'sja	**4**	**2**	2%	2%	228	114	**98%**	**98%**
kommentit'	617	230	**87%**	**96%**	95	10	13%	4%
apgrejdit'	415	39	**77%**	**83%**	121	8	23%	17%
frendit'	619	30	**99%**	**100%**	5	0	1%	0%
frilansit'	62	6	10%	7%	573	76	**90%**	**93%**
autsorsit'	**1**	**0**	10%	0%	**9**	**2**	**90%**	**100%**
brauzit'	**3**	**0**	**60%**		**2**	**0**	40%	
relizit'	33	10	**79%**	**77%**	9	3	21%	23%

Table 3. Transitive vs. plain softening in second conjugation 1SG forms of dental verbs (2025a and 2025b)

When it comes to the dental fricatives, as in earlier studies, the s-verbs favoured plain softening in the 2025 searches (90% and 93%–100%), while the z-verbs instantiated transitive softening in the majority of 1SG tokens (60% and 77%–79%). It should, however, be noted that the raw numbers for *autsorsit'* and *brauzit'* are very low, even to the point of zero attestations for *brauzit'* in the 2025b search.

Verbs with stems in -st	1SG Transitive softening				1SG Plain softening			
	Raw number		Percent		Raw number		Percent	
	2025a	2025b	2025a	2025b	2025a	2025b	2025a	2025b
postit'	26,700	1070	**92%**	**90%**	2,430	116	8%	10%
repostit'	18,500	192	**95%**	**95%**	998	10	5%	5%
kopipastit'	230	69	**55%**	**48%**	192	76	45%	52%

Table 4. Transitive vs. plain softening in second conjugation 1SG forms of verbs with stems in -st (2025a and 2025b)

Table 4 presents the results for the verbs with stems in -st. As in the 2020/2021 search, there is a difference between *postit'* and *repostit'* vs. *kopipastit'*. However, the tendency to use transitive softening has increased for all of them in the 2025 searches: *postit'* and *repostit'* from 85% to 93% on average; *kopipastit'* from 39% to 55% and 48%.

4. Discussion

Reviewing the results from earlier studies up to my 2025 searches, a clear trend can be seen in most of the verbs in my sample: they have gradually moved towards more transitive softening in their 1SG non-past forms. Thus, for the verbs that we can compare from Plungjan 2010 through Slioussar and Kholodilova 2013 and my 2020/2021 search

up the two searches I conducted in 2025, the use of transitive softening has increased as displayed in table 5.

Transitive softening	2010	2013	2020/21	2025a	2025b
postit'	55% (*pošču/posču*)	77%	86%	92%	90%
frendit'[3]	19% (of *frenžu+frendju*)	86%	95%	99%	100%
kommentit'	58%	75%	80%	87%	96%

Table 5. Increase in transitive softening in 1SG non-past of* postit', frendit', kommentit' *2010–2025

Thus, there are now stems in -st, -d, and -t that reach levels of transitive softening close to those of labial verbs (except those with f-stems), seen in all studies that discuss 1SG non-past of novel second conjugation verbs. Verbs with f-stems invariably report less transitive softening. Slioussar and Kholodilova (2013) and Pertsova (2016) report only 35% transitive softening for *serfit'*. Pertsova also found that the frequent verb *serfit'* showed less transitive softening than less frequent verbs with f-stems. In my searches, *sërfit'* consistently manifested higher but fluctuating levels of transitive softening (67%, 79%, and 54%). The results for *serfit'* in the 2025 searches also show variation: only 32% transitive softening in the search without limitations of language and region vs. 64% when limited to Russian pages. Thus, at least in Russian pages, both variants of this f-stem attest increased use of transitive softening compared to earlier studies. However, the results for *selfit'sja* go in the opposite direction: transitive softening has decreased from 91% in the 2020/2021 search to 65% and 60% in 2025. That the results for novel verbs with f-stems differ so much from other labial verbs is probably to do with the fact that there are very few verbs with f-stems in Russian, and most of them are infrequent (Pertsova & Kuznetsova 2017). In an experiment Pertsova and Kuznetsova found that standard Russian verbs with f-stems "elicited lower confidence and lower alternation rates compared to other low-frequency labial verbs" (Pertsova & Kuznetsova 2017:428).

When it comes to verbs with dental stems, almost all t- and d-verbs have seen an increase in the use of transitive softening (cf. Table 5). The exception is *čatit'sja* instantiating plain softening in 98% of the occurrences (Slioussar and Kholodilova 2013; both 2025 searches) and 100% (2020/2021). A plausible explanation suggested by Moskvin (2015) and Pertsova (2016) is avoidance of repeating consonants (because it sounds awkward). Another reason for avoidance of a form with transitive softening suggested by Moskvin (2015) is that an unwanted association with another word could

[3] An anonymous reviewer wondered, if the form *frendžu* would undergo a process analogous to that of *frenžu*. Judging from searches with the same limitations as 2025a and 2025b, the utilization of *frendžu*, like *frendju*, is decreasing: Plungjan (2010) found 16 attestations of *frendžu*, the 2025 searches gave only 6 and 4 hits.

appear. As it happens, the form *čačus'* could bring the Georgian liquor *chacha* to mind. That the association between *chat* and *chacha* has been made can be seen in (3).

(3) *P.S. tak že v processe obsuždenija pojavilsja glagol "čačit'sja", t.e. sidet' v čate popivaja čaču.*[4]
'P.S. also in the process of discussion the verb "čačit'sja" turned up, i.e., sit in a chat drinking chacha.'

The 1SG form of the newly coined verb *čačit'sja* would, of course, be *čačus'*.

When it comes to stems in the dental fricatives, already in Slioussar's and Kholodilova's (2023) study z-verbs had more tokens of transitive softening (*brauzit'* 18%) than the s-verbs (*frilansit'* 9%). In my sample, the z-verbs are gradually moving towards transitive softening. In 2020/2021, *brauzit'* showed 25% transitive softening and in 2025a 60% (no attestations in 2025b). *Relizit'* moved from 29% transitive softening (2020/2021) to 79% and 77% (2025). The s-verbs have not seen any increase in transitive softening since Slioussar's and Kholodilova's (2013) rates for *frilansit'* (9% transitive softening vs. 91% plain softening), rather an increase in plain softening appeared in my 2025b search: *frilansit'* had 93% plain softening and *autsorsit'* 100% (however, only two tokens). This difference between s-verbs and z-verbs needs further investigation.

I examined only one consonant cluster, namely, -st that alternates with -šč in standard Russian. As already demonstrated, *postit'* has moved towards increased use of transitive softening, and *repostit'* follows the same trend. Slioussar and Kholodilova (2013) mention that stems in consonant clusters are characterized by a variety of "incorrect" alternations, one of which is *posču* (which was counted together with the correct form *pošču* by Plungjan 2010). I searched for this form in the same Russian pages as the other 1SG forms. The result was 126 occurrences, i.e., only 10 occurrences more than for *postju*, which means that *pošču* is by far the most frequent form (1,070 tokens). *Postit'* and *repostit'* are the second and third most frequent verbs in my sample (after *strimit'*). The less frequent *kopipastit'* has only slightly increased its proportion of transitive softening from 39% (2020/2021) to 55% and 48% (2025). (Slioussar & Kholodilova 2013 reported 14% transitive softening for *kopipejstit'*, not attested in my 2020/2021 search.)

To conclude, only four verbs (out of nineteen) have not developed towards an increase in the use of transitive softening in 1SG non-past forms: *čatit'sja*, *frilansit'* and *autsorsit'* have had about the same very high levels of plain softening in all studies, while *selfit'sja* has moved towards decreased use of transitive softening between 2020/2021 and 2025. For the "problems" with *čatit'sja* and *selfit'sja* possible explanations have been proposed in the literature, but why s-stems seem to avoid alternation remains unclear.

[4] https://pyrcus.livejournal.com/470039.html

All verbs in my sample except *jutubit'*, *nubit'*, *autsorsit'*, and *brauzit'* are codified in *Vikislovar'* (ru.wiktionary.org). In the main, the 1SG non-past forms feature transitive softening alternation. The exceptions are *čatit'sja*, *frilansit'*, and *kommentit'* with plain softening, and *repostit'* that has a gap for the 1SG form. Thus, only *kommentit'* and *repostit'* differ from the results of my Google searches.

My findings corroborate the results of earlier studies when it comes to stems in different consonants and ease of adjusting to the standard consonant alternations. Thus, dental stems and the cluster -st are less easily adjusted than labial stems. However, my findings show that with time and high frequency such verbs also tend to gradually adjust. Some exceptions can be explained by the overall low frequency of the type of stem in the language and unfortunate repetition of consonants.

5. Conclusion

As demonstrated in this article, second conjugation 1SG non-past forms of new borrowings vary in which of Tore Nesset's (2008) schemas for present tense forms with V-initial endings they follow. Most of my sample of verbs at present follow the pattern of normative Russian to a very high degree. However, a few t- and s-verbs seem to have basically settled with plain softening, and in some verbs there is considerable variation in choice of schema. Applying different types of interaction or instantiation of the schemas for present tense forms, the model described by Nesset could easily be used to account for non-normative as well as normative forms (cf. the sublexical grammar approach by Magomedova and Slioussar 2017).

Some researchers have written about the breakdown or decay of alternations. My small-scale investigation suggests instead that the system of alternation is not collapsing, but that certain variation is tolerated in new verbs, either while they are not fully integrated or out of pressure from rest of the paradigm. Larger scale investigations of more and newer verbs, different written communication types and communities, as well as oral production tasks would be needed for further elucidation of the variation in 1SG non-past forms.

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О данном и данных: из истории

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Данное эссе посвящено причудливой истории слова *данный* в русском языке во взаимодействии с европейскими и представляет *дань* любви и восхищения к давнему другу – прекрасному лингвисту и русисту, блестящему педагогу, музыканту и добрейшему человеку – Туре Нессету.

Согласно Словарю русского языка XI-XVII вв., *данный* – старое русское слово, давно лексикализовавшееся, то есть приобретшее к тому времени фиксированное терминологическое значение: 'относящийся к **дани** и любого вида податям'. В текстах НКРЯ до XVIII в. встречается почти исключительно в сочетании *данная грамота*, которое тоже терминологично и означает документ, закрепляющий право собственности, как в (1):

(1) *Список з* **даные грамоты** *на Игнатьевскую и на Высочскую.* <То есть копия с документа, подтверждающего право собственности на Игнатьевскую и Высочскую земли.> [Михаил Афанасьев. Данная Мих. Аф. [Княжнина] Тр.-Сергиеву м-рю на земли Игнатьевскую и Высочскую, в Радонеже (1430—1450)]

Между тем с XVIII в. в корпус попадают совсем другие тексты, и в них сочетаемость *данный* принципиально иная, как если бы в этот период оно ре-анализировалось: слово данный снова оказывается связанным с исходным глаголом *дать* как его страдательное причастие со значением 'то, что было дано', ср. (2-4).

(2) *А датчаня по* **данному своему** *слову* <то есть в соответствии с данным ими словом / обещанием> *не пошли, для чего от государя послан к ним на шнаве «Лизет» порутчик Александр Апраксин с выговором, что не идут.* [А. М. Макаров (ред.). Гистория Свейской войны (Поденная записка Петра Великого) (1698-1721)]

(3) *Доколе оные рудные заводы довольных работников иметь, и по уставам, каковы коллегиум впредь объявит, содержатись будут, имеют оные промышленники рудокопных дел, по* **данным их** *привилегиям* <то есть в соответствии с данными им привилегиями>, *или жалованным грамотам сим*

обнадежены быть, что у них и у наследников их оные заводы отняты не будут. [[Петр I]. Берг-привилегия (1709)]

(4) <...> *с повелением строить оную по* **данному плану** <то есть по плану, который был заранее задан>. [А. С. Пушкин. История Петра: Подготовительные тексты (1835-1836)]

Связь с данью (а через дань и налогами, и в целом идеей собственности) *данный* потеряло, по-видимому, под влиянием европейских языков, где такие семантически прозрачные конструкции с производными признаковыми словами от глаголов со значением 'дать' были в ходу, ср., например, немецкое *gegeben* 'данный'. Так же устроен и распространенный, в особенности в первой половине XIX в., фразеологизм того времени (видимо, калькированный – ср. французские и немецкие аналоги – *signe donne* и *gegebenes Zeichen*), который встречается например у М.Ю. Лермонтова, – *по данному знаку*, то есть по знаку или сигналу, который был дан, ср. (5), а также (6-7):

(5) *Грушницкий стал против меня и* **по данному знаку** *начал поднимать пистолет.* [М. Ю. Лермонтов. Герой нашего времени (1839-1841)]

(6) **По данному знаку** *Темир-Кутлуя Эйтяк и русский князь преклонились и вышли из шатра.* [Н. А. Полевой. Повесть о Симеоне суздальском князе (1828)]

(7) **По данному знаку** *входят воины, заключают Василька в тяжкие оковы.* [Н. М. Карамзин. История государства Российского: Том 2 (1806-1818)]

Однако постепенно непосредственная связь с глаголом у причастия стирается. Результат лучше всего виден в научных текстах середины XIX в., в том числе русских, которые копируют соответствующие конструкции европейских языков, где это произошло раньше, ср. (8-9):

(8) <...> *надобно взять произвольно линию в* **данной плоскости** *вне данной точки на плоскости* <...>. [Н. И. Лобачевский. Геометрия (1823)]

(9) <...> *выражает ту идею, что* **данное вещество** *содержит атом циана* <...>. [А. М. Бутлеров. Теоретические и экспериментальные работы по химии (1851-1886)]

Фактически в этих примерах *данный* уже выступает как местоимение со значением 'этот', потому что абстрактные научные объекты – ср. *плоскость* в (8) или *вещество* в (9) – не связаны с процедурой передачи из рук в руки даже метафорически. Однако имплицитно эти конструкции видимо все же апеллируют к терминологической паре «дано (то есть задано условиями задачи < 'дать') – доказать», так что калькированное терминологическое местоименное значение на тот момент нельзя считать в полной мере грамматикализованным. В качестве промежуточного (bridging) примера, до определенной степени иллюстрирующего сам процесс дальнейшего перехода, можно рассматривать употребления типа (10):

(10) *Не думаю, чтобы лестницы, особенно задняя, где-нибудь представили столько занимательных сцен, как у нас на Руси. Но об этом когда-нибудь после. Ограничусь изображением того, что в* **данное нами** *время стеклось у герцога курляндского с обоих крылец.* [И. И. Лажечников. Ледяной дом (1835)]

Время – тоже абстрактная категория, но здесь автор говорит о том, что он **задал** временной промежуток для своего повествования, и это и есть *данное нами время*: 'то, что нами дано', и поэтому одновременно 'это' – просто *данное время.*

В современном русском эти употребления разошлись синтаксически: при причастии обязательно дополнительно к объекту должен быть выражен какой-то еще участник ситуации, ср. *данные тебе деньги / данные им деньги / (пере)данные в машине деньги* и проч. Тогда эта ситуация интерпретируется как связанная с глаголом *дать*. Простое сочетание *данный* с определяемым существительным превращает его в местоимение 'этот'1. Именно здесь коллизия старой и новой интерпретаций *по данному знаку*: в XIX веке никакого дополнительного участника указывать было не нужно, потому что тогда еще у данный не было конкурирующего местоименного значения. Последнее «старое» (без дополнительного участника) употребление этого выражения в НКРЯ вызвано стилизацией для исторического романа:

(11) <...> *по* **данному знаку** *гребцы налегли на весла, и быстроходный военный корабль понес молодую чету в изгнание.* [А. П. Ладинский. Последний путь Владимира Мономаха (1960)]

Таким образом, если бы мы решились на «перевод» выражений типа *по данному знаку* на современный русский, лучше было бы отказаться от атрибутивной конструкции и оставить глагол: *когда я* (*по*)*дам знак* или *подам сигнал*.

Как уже было сказано, в примерах второй половины XIX века заимствованное местоименное значение *данный* терминологично – оно встречается в естественно-научных текстах, как в (8-9). К сегодняшнему дню, то есть полтора века спустя, сфера его употреблений как местоимения существенно расширилась, так что в русском *данный* неожиданно получило развитие, не засвидетельствованное ни в одном европейском языке-источнике. Можно уверенно назвать это расширение грамматикализацией в местоимение, правда, стилистически ограниченной рамками письменных текстов, причем относительно формальных (то есть например, не включающих дружескую переписку друзей) или имитирующих такие письменные тексты устных – ср. здесь разного рода доклады.

[1] Единственным исключением является сочетание *данное слово*, которое не требует дополнительных участников (ср.: *данное им слово*), так как представляет собой «фразеологизованный остаток» причастного значения, так распространенного в XVIII -начале XIX века: 'слово, которое дано', ср. *нарушил данное слово*. Новое значение 'это слово' успешно с ним конкурирует, см. ниже пример (14).

Для наглядности мы в качестве иллюстрации сказанного выбрали в НКРЯ современные примеры с теми самыми сочетаниями, которые, когда-то могли интерпретироваться как причастные ('данный кому-то'), и соответствующие примеры этого были приведены выше: *данный знак, данная грамота*, *данное слово, данный план, данные привилегии*. Как видно из (12-16), сегодня носители воспринимают эти контексты только как местоименные, ср.:

(12) *В наиболее древней форме* **данный знак** (то есть 'этот знак', который был упомянут) *выражался графическим символом хвоста скорпиона или дракона.* [«Проблемы Дальнего Востока», 28.10.2002]
(13) Не считаем нарушением определенной орфографической нормы случай, где ь стоит на месте ожидаемого е в слове-названии одушевленного предмета, которое в древнерусском языке принадлежало к склонению основ на о, но в данной грамоте (‘в этой, обсуждаемой грамоте’) имеет форму дат. п. ед., ч., образованную по типу основ на й: Васильви (от бытового Василь, а не от более частого книжного Василии). [В. И. Борковский. Драгоценные памятники древнерусской письменности // «Вопросы языкознания», 1952]
(14) Люди, которых можно называть данным словом (‘этим словом’), были и будут всегда [Rozetked Discuss. telegram Rozetked Discuss (05.08.2022)]
(15) Для обсуждения возможного изменения данного плана (‘этого, обсуждаемого плана’) министры договорились проводить ежемесячные встречи. [Ведомости, 2021.10.04]
(16) До этого данной привилегией (‘этой привилегией’) пользовались только те нуждающиеся, кто встал в очередь до 1 марта 2005 года. [Комсомольская правда, 03.03.2010]

Вопрос о том, почему *данный* не выходит за пределы определенных стилистических границ и не проникает в устную речь, связан со спецификой его местоименной семантики. *Данный* – не указательное (характерное для устной речи), а анафорическое местоимение со значением 'этот', отсылающее к актуализованному референту, уже упомянутому и находящемуся в фокусе внимания. Ср. частотные в данном случае или в данный момент, хорошо отражающие этот аспект семантики данный.

Отдельный интересный сюжет в связи с историей слова *данный* представляет субстантивация. Сейчас кажется, что сочетания типа *новые данные, цифровые данные* – это приобретение самого последнего времени (ср. здесь также *персональные, личные, секретные, паспортные... данные*). Однако в русском первые примеры такого рода встречаются еще 200 лет назад – как калька с латинского *data*, непосредственная или опосредованная, через французский, немецкий и польский:

(12) *Приезжайте, я вам сообщу интересные* **данные для** *ее печально поучительной биографии.* [Т. Г. Шевченко. Прогулка с удовольствием и не без морали (1855-1858)]
(13) *В течение его автор ездил на родину и об этой поездке оставил почти исключительно одни цифровые* **данные**, **которые** *не могут иметь интереса.* [А. В. Никитенко. Дневник (1838)]

Понятно, что в понятие цифровых данных сейчас вкладывается совсем другой смысл, чем 'данные, содержащие численные значения', как раньше. Однако семантика слова *данные* в таких контекстах полностью сохранилась.

Эссе

Далёкие годы и дальние края в современной русской фонетике и орфографии

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В современном русском обращают на себя внимание, среди прочего, две тенденции. Первая из них проявляется в некоторых особенностях передачи на письме названий предприятий, образованных от фамилии владельца. Вторая – это определенная путаница в произношении и написании двойных согласных.

Первая из них обратила на себя внимание автора приблизительно с начала девяностых годов прошлого столетия. Она касается возрождения распространенной в России до революции 1917 года и продержавшейся во времена НЭПа традиции (в Европе не прерывавшейся) называть предприятия и заведения по фамилии владельцев или основателей.

При советской власти, однако, идеалом являлась общественная собственность. Предприятия промышленности и торговли принадлежали народу, а никак не отдельным людям. Соответственно, и называться по чьей-либо фамилии они не могли. Возникла новая формула названий, которая могла содержать указание на имя: имени такого-то. При этом деятель, именем которого называли предприятие, нередко не имел к нему никакого отношения. Например, в 1858 г. английским механиком Гуллетом был основан завод в Перми; завод несколько раз менял владельцев и название, и в конце концов в 1926 году ему было присвоено имя Ф. Э. Дзержинского, умершего в этом году, но с заводом никак не связанного: Машиностроительный завод имени Ф. Э. Дзержинского. Владимир Ильич Ленин на пик Ленина на Памире не поднимался (до 1928 г. пик Кауфмана, с 2006 г. – пик Абу Али ибн Сины). Над подобной практикой позволили себе пошутить Илья Ильф и Евгений Петров в книге «Двенадцать стульев», где герои отправляются ночевать в общежитие имени монаха Бертольда Шварца.

После распада Советского Союза от этой практики не отказались, лишь в ряде случаев поменяли имена. Так, Московский университет с 20 октября 1932 г. носил название Московский государственный университет им. М.Н. Покровского, историка-марксиста, умершего в этом году. Однако

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позже взгляды Покровского были признаны неправильными, и с 11 ноября 1937 г. его имя из названия университета было убрано: Московский государственный университет. Наконец, с 7 мая 1940 г. университет называется Московский государственный университет им. М.В. Ломоносова (формулировка полного названия неоднократно менялась, но имя Ломоносова в нём оставалось).

Однако с появлением в 90-е годы прошлого века вновь частных фирм и производств постепенно вернулась и казалось бы канувшая в лета практика называния предприятий по фамилии владельца. Так, назвать издательство собственным именем предложил Ивану Юрьевичу Лимбаху писатель Андрей Битов: «были же в России издательства Собашниковых, Сытина, Девриена, Маркса», пишет журналист в материале, посвященном 30-летию петербургского издательства Ивана Лимбаха, основанного в 1995 году (Шеромова 2025).

Чуть позже, в 1999 году, предприниматель Борис Юрьевич Александров, основатель компании «Ростагроэкспорт», запустил бренд глазированных сырков премиального класса «Б. Ю. Александров». Фамилия этого бизнесмена образована от имени Александр; как известно, многие русские фамилии представляют собой, собственно, форму родительного падежа имени (Иванов) или названия профессии (Кузнецов) начинателя рода.[1] Как указано в исследовании (Рылов 2006: 183), «90% русских фамилий образованы при помощи формантов кратких притяжательных прилагательных -ов/-ев, -ин».Чаще всего в мужском роде такие фамилии имеют окончание -ов, и при склонении в формах, оканчивающихся на согласный, этот согласный оглушается: Ивано/ф/ – Ивано/в/а – Ивано/в/у. В прежние времена, до появления с середины прошлого века в разных странах официальных правил транслитерации иноязычных имен собственных, при передаче латиницей таких фамилий и, соответственно, предприятий, названных по имени владельца, часто использовалась соответствующая произношению форма –off. Так, мясное блюдо, известное в современной России как бефстроганов, было названо французским поваром графа Строганова по-французски же bœuf Stroganoff. Именно в такой форме, лишь с изменением обозначения говядины (английское beef Stroganoff или испанское ternera strogonoff), оно вошло в кулинарный дискурс многих западноевропейских стран. Ср. норвежское и шведское Biff Stroganoff с вариантами (Glad i mat 2007/1: 18). Не нужно далеко ходить – читающим скандинавам хорошо знакомо имя шведской писательницы Karin Smirnoff.

Войдя в лексический состав языков, обладающих иной фонетикой, это название, разумеется, утратило ту особенность, которой обладало в соответствии с фонетическими закономерностями русского языка, а именно тем, что оглушенный в /f/ согласный на конце слова перед паузой, оказываясь при

[1] https://saransk.bezformata.com/listnews/familii-na-rusi-nosili/151169863/

склонении слова по падежам в межвокальном положении, произносится звонко: Строганов /f/ - Строганова /v/. Так, рассказывая о происхождении этого блюда и, соответственно, о роде Строгановых, автор материала в норвежском рекламном кулинарном журнале не отражает в транслитерации фамилии озвончения согласного: “Stroganoffene hadde drivhus og kunne servere all slags frukt og grønnsaker midt på kaldeste vinteren” (Glad i Mat 2007/1: 18). А вот в финском языке, исконный фонемный состав которого не включает /f/, это блюдо называется stroganovinpihvi.

В «Пире Бабетты» Карен Бликсен «Заскорузлые провинциалы едят черепаховый суп под херес amontillado, блины Demidoff с черной икрой под Veuve Cliqcuot 1860» (Вайль 2002: xi, выделение наше). На российских сайтах это блюдо называют по-разному, но всегда отражая произношение с долгим глухим /f/: блинчики а-ля Демидофф, блины Демидофф. Предположительно именно это блюдо – изобретение самой датской писательницы, но во французской кулинарии имеются также фазан Faison Demidoff, пулярка Poularde Demidoff и другие, названные, вероятно, в честь графа Демидова, супруга Матильды Бонапарт, племянницы Наполеона I. Ряд других аристократов оставили след во французской кулинарии, весьма популярной в России особенно в XVIII-XIX веках. В их честь названы, например, омлет Omelette Orloff (любимый омлет Пикассо), десерт клубника романофф fraises (à la / façon) Romanoff. В том же виде, то есть с написанием -офф/-off, они вошли и в русский кулинарный лексикон.

«Сформировавшиеся во французской кухне изысканность и подчеркнутый аристократизм завораживали российский высший свет», сказано в увлекательной книге Виталия Задворного «Французская кухня в России и русской литературе» (Задворный 2023: 119). Не удивительно, что даже если в русский лексикон с его кириллицей подобные отыменные названия вошли в форме на -офф/-off, та же форма широко использовалась во всех странах, на высокую кухню которых оказала влияние французская. А это кухни практически всех стран Европы и Америки.

Разумеется, русские фамилии требовалось передавать латиницей при переводе литературных произведений. Герой романа Льва Толстого «Воскресение» зовется в норвежском переводе Хольгера Синдинга (1899), взявшего за основу имевшийся французский перевод, Fyrst Nekliudoff. В 1948 г. в Стокгольме была поставлена опера швейцарского композитора Генриха Зутермайстера «Raskolnikoff», созданная по мотивам романа Фёдора Достоевского «Преступление и наказание». Название «Raskolnikoff» носит ресторан в Дрездене.

Заслуживает упоминания история марки финского пива KOFF, представляющей собой сленговый вариант, образованный от названия

предприятия купца Николая Синебрюхова, созданного в Хельсинки в 1819 г. (Великое Княжество Финляндское входило в состав Российской Империи с 1809 по 1917 год): Sinebrycho**ff**. Эта пивоварня до сих пор является крупнейшей в Финляндии.

Другой популярный бренд – водка Smirno**ff**, история которой началась в России в XIX веке. Тогда она называлась «Смирновъ №21» (о написании с твердым знаком см. ниже), но после эмиграции основателей стала популярна под названием в написании латиницей. Прочитать об этом подробнее можно в увлекательной книге норвежского писателя Гейра Поллена (Pollen 2021: 98-102).

Популярный во второй половине двадцатого века исполнитель русских песен, немец по национальности, Ханс-Рольф Рипперт выступал под псевдонимом Ivan Rebro**ff**. Экзотические псевдонимы выбирают многие представители творческих профессий; русский псевдоним в данном случае возможно обусловлен не только репертуаром, но и славой великого Шаляпина.

В Чехии с 1864 г. производятся пианино Petro**f** (с одной буквой -f). Компанию основал и назвал своим именем чешский предприниматель Антонин Петроф, а правила чешской орфографии запрещают написание двух одинаковых согласных подряд. Думается, однако, что большинство слышавших об этих инструментах дилетантов (музыканты-то знают) уверены, что фамилия русская.

Когда традиция прервалась, оставшиеся в памяти русских и в литературе названия фирм и заведений с написанием формы родительного падежа единственного числа в фамилиях с -оф, -офф, -off стали ассоциироваться с недоступными роскошью и свободой предпринимательства прежнего и обрели романтический флёр. Распространенные же фамилии с написанием -ов воспринимались как массовые, простецкие: «Фамилии, которые в сознании русских ассоциируются с типичным представителем нации, человеком с улицы, – *Иванов, Петров, Сидоров*» (Рылов 2006: 189). Видимо, поэтому, когда обладатели фамилий на -ов стали называть принадлежащие им предприятия и заведения своим именем, они предпочли писать названия через -офф (Банк Тинько**фф**), в двух вариантах (Ресторан Uso**ff** / Усо**фф**) и даже в гибридном написании (Ресторан ”Ушако**ff** ”).

Однако большинство современных названий торговых марок, выглядящих как фамилии владельцев или основателей, на самом деле образованы от имен нарицательных, призванных внушить покупателю, что в названии марки указывается ключевое свойство продукта или услуги – от соответствующих существительных и, реже, прилагательных образованы фантазийные фамилии, используемые в названии. Конечно, фамилии типа Кузнецов (Купцов, Певцов, Портнов), образованные от обозначения рода деятельности носителя, существовали издавна. Однако у настоящих владельцев предприятий, перечисленных ниже, фамилии не те, что фигурируют в названии бренда.

Подбор фамилии для названий указанного типа диктуется, вероятно, двумя соображениями: легко запомнить и найти фирму по названию, намекающему на то, чем она занимается; название ироничное, вызывает улыбку, поскольку «аристократическое» написание с -оф(ф) контрастирует с бытовым, не сказать, низменным, занятием, на которое намекает название. В пример можно привести транспортные компании «Грузовичко**ф**» и «Таксовичко**ф**», гель от тараканов и муравьев «Тараканo**фф**», сеть кофеен «Чайнико**фф**», сеть прачечных «Чисто**фф**».

Если продукт популярен, от его наименования могут быть образованы названия с разными вариантами написания: «Блинный бар Блино**ф**», ресторан «Блино**фф**» традиционная российская сеть блинов «BlinO**ff**»; ресторан доставки «Пирого**ф**», кафе «Пирого**фф**».

Забавно, что название сорта кофе «Иргаче**фф**», данное ему по региону в Эфиопии, где он выращивается, многие русские воспринимают как название торговой марки по фамилии предпринимателя и читают букву «е» в нем как /о/. Интуитивно это слово встает в ряд с другими, где на месте буквы «ё» часто пишется «е», которая после шипящих произносится как /о/.

Иногда цепочка ассоциаций, вызываемых названием продукта, более сложна: БАД «Изжого**фф**» предназначен для предотвращения изжоги; колбаса «Крако**фф**» представляет собой вариант традиционной краковской колбасы; универсамы «Семишаго**фф**» расположены так, что до них недалеко идти пешком.

Разумеется, есть и примеры написания с -ов/-ев: пиво «Бочкаре**в**», сыры «Бутеобродо**в**», хлопья «Быстро**в**», ресторан «Грибоедо**в**», колбасы «Дымо**в**», мясные изделия «Мясоедов», производитель сыров «Сыробогато**в**». Но и в этом случае название марки продукта образовано не от фамилии предпринимателя, а призвано ассоциироваться с самим продуктом: пиво традиционно хранят в бочках, каша из хлопьев готовится быстро, у писателя говорящая фамилия – возможно, его предки любили есть грибы, название «Мясоедо**в**» говорит само за себя, как и «Бутербродо**в**», и «Сыробогато**в**». Последнее название явно образовано по образцу реально существующей фамилии Скоробогатов. Однако наиболее показательная, на наш взгляд, история связана с брендом колбасных изделий «Дымо**в**». Основатель предприятия Вадим Засыпкин приобрел обанкротившийся Крылатский мясокомбинат в Москве и переименовал его по фамилии вымышленного персонажа «Дымов»: среди сортов выпускаемых колбас много копченых, они должны попахивать дымком, пусть виртуальным. Когда продукция обрела популярность, Засыпкин сменил фамилию на Дымов.[2]

Так же по ассоциации с родом занятий и на основе двух других распространенных моделей фамилий (на -ин и на -ский) образованы названия

[2] https://www.forbes.ru/forbes/issue/2004-12/21876-imya-sobstvennoe

предприятий по утилизации отходов и переработке вторсырья «Переработк**ин**» и «Переработкин**ск**ая».

К сожалению, остроумные сочинители названий не обошли вниманием фамилии русских знаменитостей. Вряд ли на репутацию старца Распутина может бросить тень то, что его именем названы кафе в Санкт-Петербурге и ресторан в Сочи. Вероятно, предполагается, что в этих заведениях можно веселиться, полностью раскрепостившись. Однако хотя в ресторане Грибоедов и висит портрет писателя, в названии скорее обыграна его фамилия, как обыграна фамилия другого писателя в названии службы доставки продуктов «Достаевский» – по созвучию со словом «доставка» (от этого же корня буква «а» в названии службы). Особенно не повезло в этом смысле композитору Чайковскому, в фамилии которого буква «в» перед «с» произносится как глухой /f/ и, соответственно, с известной долей фантазии основу этой фамилии можно представить себе как возводимую к названиям напитков «чай» и «кофе». В продаже имеется пирожное с какао в шоколадной глазури и с шоколадной начинкой «Чайко**ф**ский», есть магазин бакалеи «ЧайКо**фф**ский», чайная фирма «Чайко**ff**ский», магазин элитных чайных бомбочек и ложечек «ЧайкО**фф**ская». Как видим, в написании этих названий используются самые разные приёмы. На самом же деле фамилия композитора происходит от польских или украинских топонимов, образованных от прозвища «чайка», значение которого одни связывают с названием птицы, другие с глаголом «чаять» (то есть «надеяться»).

Другой способ придать названию ореол традиции – написание существительных, оканчивающихся на согласный, с ером (сегодняшним твердым знаком), как это было принято в русской орфографии до 1918 года. В современном русском языке эта буква на конце слова является непроизносимой.

Ресторан «Абрикосо**въ**» открылся на Невском проспекте в 1990 году на месте бывшего кондитерского магазина «Товарищества А.И. Абрикосова и Сыновей», появившегося здесь в 1906 году, сообщается на сайте заведения.[3] Вообще же магазины «Абрикосов и Сыновья» существовали и в других крупных городах России.[4]

Другой известный ресторан, в названии которого владельцы используют твердый знак – «Палкин**ъ**». Сайт заведения, открывшегося под этим названием в 2002 году, сообщает: «В 60-х годах XIX века в Петербурге существовало два ресторана, славившихся русскими кушаньями, принадлежавших почетному гражданину, коммерции советнику, купцу 1-й гильдии Константину Павловичу Палкину. В 1914 году Россия ввела «сухой закон», и ресторан начал пустеть. К 1917 году «Палкинъ» окончательно закрылся», и далее разъясняется, что

[3] https://www.restorating.ru/spb/catalogue/abrikosov
[4] https://abrikosov-spb.com/history

ресторан «стремился возродить традиционную для Санкт-Петербурга атмосферу «хлебного» гостеприимства, сложившуюся еще в конце XIX – начале XX веков».[5]

«Дореволюционная» буква в названиях двух указанных заведений несомненно вносит свой вклад в создание этой атмосферы. Как и окончание -оф(ф)/-off, твердый знак используется в названиях брендов пищевых продуктов, как бы свидетельствуя об их высоком качестве и накопленном производителями многолетнем опыте. Это, например, пельмени «Ложкаревъ», майонез «Махеевъ» и белорусские молочные продукты бренда «Рогачевъ». И хотя в названии бренда «Махеевъ» использована фамилия одного из основателей производства (друзей Леонида Барышева и Леонида Махеева), зарегистрирован он был в 1999 году, так что здесь говорить о возобновлении дореволюционных традиций не приходится. Однако в рекламных целях компанией распространялась легенда о неком купце Махееве, производившем майонез в дореволюционной Елабуге. Что касается Рогачевского молочноконсервного комбината, то он был основан в старинном городе Рогачев лишь в 30-х годах прошлого века.

Хозяйство «Курцево» в Городецком районе Нижегородской области, запустившее производство в 2019 г., продает сыр сорта «стилтон» под названием «Стилтон**ъ**». Говорить о сохранении традиций не приходится и здесь.

Однако одним из первых использовал этот способ придания респектабельности своему предприятию издательский дом Коммерсант**ъ**, история которого начинается с 1988 года.[6] Им была основана еженедельная газета «Коммерсант**ъ**» — первое частное деловое издание в стране. Стоит отметить, что в советское время слово «коммерсант» использовалось большей частью с негативной оценочностью и применительно к капиталистическим странам.

Однако употребление твердого знака в целях привлечения (солидных) клиентов не слишком распространено, возможно, потому, что если произнести в шутку какое-нибудь Таксовичко**фф**, утрируя /f/, легко, а вот твердый знак произнести невозможно.

Разумеется, не только русских влечет в дальние страны, жизнь в которых представляется более увлекательной, или в далекое прошлое, окутанное романтической дымкой. Как гласит пословица, gresset er (alltid) grønnere på den andre siden.[7] Если в реальности сменить место жительства или повернуть время вспять оказывается невозможно, выход в том, чтобы видоизменить свою фамилию. Тогда тебя будут принимать за выходца «оттуда», априорно более культурного, аристократичного и овеянного ореолом загадочности.

[5] https://palkin.ru/history
[6] https://www.kommersant.ru/about
[7] https://www.forskning.no/kultur-ny-psykologi/spor-en-forsker-hvorfor-er-gresset-alltid-gronnere-pa-den-andre-siden/319872

Примеры подобного рода встречаются и у скандинавов. Если в исконно германских словах, в том числе в именах собственных, ударение тяготеет к первому слогу, можно переставить его на последний (ср. шведские фамилии Lund**i**n, Fälld**i**n, которого русские дикторы, поскольку ударение на именах собственных, в том числе иностранных, к сожалению, не ставится, часто называли Ф**е**льдин, как Ф**е**дин). Если фамилия простецкая, добавим de или von; можно латинизировать фамилии, что практиковали священнослужители: Лестадиус, Сибелиус, Топелиус (Læstadius, Sibelius, Topelius). Такой наивный способ обретения аристократического лоска высмеян еще Людвигом Хольбергом, у которого простой датский парень Rasmus Berg, отучившись в университете, настаивает на том, чтобы его называли латинизированным именем Erasmus Montanus.

С другой стороны, можно изменить написание фамилии, оставив ее звучание прежним, как в норвежских фамилиях Wiig, Wahl и Krogh, о чем пишется в заметке под красноречивым заголовком «Снобизм в норвежских фамилиях».[8]

Второе явление, обратившее на себя наше внимание, можно по аналогии с народной этимологией назвать народной фонетикой, и здесь речь пойдет не о сознательных экспериментах над орфографией, а, напротив, об особенности русского произношения, о которой люди, не являющиеся специалистами по русскому языку, мало задумываются. Любому слависту известно, что в русском языке двойные согласные в исконной лексике встречаются на стыке морфем. В корне слова они представлены в иностранных заимствованиях. Соответственно, звучание долгих согласных ассоциируется с экзотикой, романтикой и прочими притягательными моментами. Одна моя однокурсница рассказывала, что выбрала кафедру скандинавской филологии, потому что ей казались очень экзотичными и красивыми долгие сонанты и латеральные в норвежском и шведском.

Поэтому далекие от филологии русские, каковых, естественно, большинство, подсознательно ожидают, что в иноязычном слове, особенно в ударном слоге, должен быть двойной согласный, и пишут его, даже если не слышат. Таким образом на письме (гораздо реже в устной речи, о чем позже) отражаются представления о нормативном произношении.

Чаще всего заменяются двойными буквы l и n, обозначающие те самые звуки, которые так пленяли мою однокурсницу. Характерный пример, где лишняя буква вставлена журналистом в название произведения, изучение которого является обязательным в курсе литературы для гуманитарных специальностей: «Возможно, Коровин, любя друга, несколько и преувеличил его достоинства, но

[8] http://www.forskning.no/artikler/2012/oktober/338213

"Иллиаду" и "Одиссею" Михаил Врубель совершенно точно читал по-гречески».[9]

Другие примеры с «л»: «В Лапландию... к Йо**лл**упукки... в самый раз...»;[10] «в свое время Манде**лл**а стал альтернативой Де Клерку и режиму апартеида» (пишет известный политолог[11] 14.01.21); поме**лл**о (фрукт).

В книге скандинависта и культуролога В.В. Похлёбкина «Моя кухня и мое меню», видимо, «знающий» корректор или редактор поменял на Хи**лл**ка (с. 339-340) имя автора книги «Финская национальная кухня», которую на самом деле зовут Хи**лкк**а Уусивирта (Hi**lkk**a Uusivirta). Перевод этой книги выполнен как раз самим В.В. Похлёбкиным. Похожее преобразование претерпело название страны Фи**лл**и**п**ины.

Примеры с «н»: в комментарии к заметке находим «Зачем Бра**нн**а снимает бездарные копии шедевров? Да, красивые, яркие, но абсолютно бессмысленные»,[12] при том, что в тексте заметки пишут «Бра**н**а»; режиссёр Бю**нн**юэль;[13] ликёр ва**нн**а Таллинн;[14] марихуа**нн**а; пи**нн**о (сорт винограда); «кольцо К335 "Шпи**нн**ель"» (объявление на сайте Avito).

Впрочем, удлинение сонорных иногда наблюдается и у скандинавов. Как известно, долгий звук /m/ на конце слова в ударном слоге обозначается одной буквой m. Слов, где эта буква обозначала бы краткий согласный, совсем немного. Звуку m акустически и артикуляционно свойственна длительность.

Возможно, поэтому в книге «Mannen som ikke ville hjem» (Pihl 2014) голубку зовут Palo**mm**a (при том, что голубь по-испански paloma, и так же называется популярная песня).

Еще более показательным представляется удвоение глухих смычных, русскому языку не свойственное вовсе. Примеры с /k/ и /p/: Выдать всем форму ха**кк**и и запретить смеяться месяц;[15] Гуа**кк**амоле в меню;[16] «Герман, сын Германа... Послеблокадный Ленинград. Поселок Келомя**кк**и (Комарово), где после войны летом жили многие ленинградские писатели»,[17] хотя на самом деле финское название поселка Ke**ll**omäki; марка полуфабрикатов Куромя**кк**и; «Винтажные бусы «Са**кк**ура в цвету» от компании Japan. Ювелирный пластик

[9] ИБ / Василеостровские новости №10, 26 сентября 2014
[10] https://www.fontanka.ru/2025/11/03/76105400/comments/
[11] https://echo.msk.ru/blog/leonid_gozman/2773574-echo/
[12] «Убийство в Восточном экспрессе» никакой фильм. (Комментарий к публикации на сайте https://www.fontanka.ru/2022/02/04/70424147/
[13] Петровский курьер 16-22 февр. 2004
[14] https://www.ozon.ru/category/liker-vanna-tallin/
[15] https://www.fontanka.ru/2025/11/26/76139687/
[16] https://www.gethistories.com/p/a-history-of-guacamole
[17] tuday.ru/tv/culture/9662174

розового тона, бижутерный сплав серебряного тона. Япония, 1970-е годы»;[18] «В Испании, когда король Фили**пп**е VI приветствовал русский робот-телескоп»...[19]

Существует бренд кофе «El Pa**ss**a». К сожалению, выяснить, какую точно идею авторы наименования бренда положили в его основу, не удалось, но результат представляет собой искаженное (удвоен согласный на конце ударного слога, безударный /о/ передается буквай «а» как бы с характерной для русского языка редукцией; получившееся в результате квазислово должно бы в испанском иметь женский род и, соответственно, оформляться артиклем женского рода la, а не мужского рода) название города El Pa**s**o в Техасе. Вероятно, название бренда призвано навеять потребителю мысли о жарком солнце где-то в Латинской Америке, а не испанском названии изюма «la pasa».

Образованная и начитанная подруга-филолог пишет о коте, кличка которого, цитирую, «Дон Ви**тт**о К**а**рлеоне». Здесь даже две обусловленных фонетикой русского языка ошибки: две буквы «т» и отраженная на письме редукция безударного «о» в «а». Конечно, этот норвежский кот на самом деле назван в честь персонажа книги и фильма «Крёстный отец» дона Ви**т**о К**о**рлеоне (Don Vi**t**o C**o**rleone).

Другая подруга, лингвист, профессор, известный переводчик, пишет, что ее папа всегда засыпал над «Жизнеописанием» Бенвену**тт**о Челлини. И хотя на обложке изданного в России перевода книги значится «Бенвену**т**о» (как и должно быть), поисковая система google моментально выдает как минимум четыре сайта, из которых два созданы в ЖЖ, один – доска объявлений ВКонтакте, и еще один обычно вполне надежен (LiveLib).

Случается, что, напротив, слова с двойным согласным пишут с одним. Видимо, таким образом в некоторых случаях проявляется гиперкоррекция: Га**л**ина бланка; Альберт А**сс**адул**л**ин[20] (имеется в виду популярный в конце прошлого века татарский певец А**с**адул**л**ин). В следующем примере не слишком грамотный читатель пишет заимствованное слово так как слышит (авторская орфография сохранена): «Я убежден, что нужны какие-то ограничения на продажу перфораторов, отбойных молотка и до. Разрушающих устройств. Я знаю, что многие, столкнувшись с многомесячной перфорацией задумываются о кил**л**ере (не серьезно, конечно)».[21]

Однако примеров замены удвоенных согласных на одинарные мало, поэтому относительно причин этого явления можно высказывать лишь осторожные предположения.

Показательный случай, демонстрирующий, насколько сложно русскому человеку, не являющемуся филологом, воспринимать и воспроизводить

[18] https://www.ozon.ru/context/detail/id/144502969/, 27.05.2018
[19] https://sergey-verevkin.livejournal.com/6252936.html
[20] Петровский курьер 16-22 февр. 2004
[21] https://www.fontanka.ru/2024/08/11/73945907/comments/

удвоенные согласные даже в казалось бы давно усвоенных словах, обнаружился в календаре на 2026 год, подаренном автору его милейшим соседом-художником, интеллигентным человеком с высшим образованием. В пользующихся уже несколько лет огромной популярностью календарях на странице каждого месяца рассказывается коротенькая выдуманная история, которую иллюстрирует рисунок соседа. Апрельская история актуального календаря называется «Клуб любителей драматического искусства 'А**пп**о**л**он'». Как утверждает расстроенный сосед, тексты в календаре трижды были вычитаны опытным корректором.

С тенденцией к удвоению согласных в заимствованиях связана также другая тенденция, просодическая. В многосложных заимствованиях, как в именах собственных, так и в нарицательных, носители русского языка стремятся выделить ударением предпоследний слог (к сожалению, место ударения на письме обычно не указывается). Поскольку удвоение согласных характерно как раз для ударного слога, удвоенные согласные появляются в весьма неожиданных позициях. Так, в объявлении о продаже сумки марки Fideli**t**y название марки написано неправильно даже латиницей (sumka_fidelitti): Сумка из натуральной кожи, пара выходов в свет, не прижилась в гардеробе.[22]

Фамилию норвежского премьер-министра Трюгве Бра**тт**ели (Trygve Br**átt**eli) дикторы радио и телевидения обычно произносили как Брат**е́лл**и, а фамилию не раз выступавшего в Санкт-Петербурге современного норвежского композитора Хеннинга Со́ммерру (Henning S**ó**mme**rr**o) – как Со**ммéр**о.

Рассмотренные явления позволяют сделать некоторые выводы. Сознательно используя двойные согласные в написании названий компаний и продуктов, образованных на базе реальных и выдуманных русских фамилий, производители потребительских товаров и копирайтеры стремятся не только привлечь внимание потребителя необычным написанием слов, но и вызвать у него ассоциации, связанные с представлением о давних традициях производства, якобы ориентированного и на экспорт, и, соответственно, с представлением о высоком качестве товара.

С другой стороны, не поддерживаемые фонотактикой русского языка двойные согласные в заимствованной лексике представляют собой значительную сложность даже для высокообразованных носителей русского языка, которые часто делают ошибки в написании хорошо знакомых им слов, в том числе имен собственных. Среди таких ошибок преобладает написание двойных согласных вместо одинарных. Это свидетельствует о том, что первые явно воспринимаются как характерная особенность чужого, заимствованного слова.

[22] https://www.avito.ru/sankt-peterburg/odezhda_obuv_aksessuary/sumka_fidelitti_naturalnaya_kozha_kruglaya_karkasnaya_2290592297

Описанные феномены показывают, что не только в лексике, как обычно принято считать, но и в орфографии и орфоэпии отражаются представления носителей языка о своем (современном, локальном) и чужом (минувшем и далеком). Удвоенные согласные, в исконной русской лексике встречающиеся лишь на стыке морфем, а в заимствованной и в иных позициях, служат одним из маркеров подобного противопоставления.

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Essay

Micro-variation and Predictability in Gender Assignment for Russian Nouns Ending in Palatalized Consonants

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1. Introduction

Nouns ending in palatalized consonants in Russian pose a challenge to learners and linguists alike, in that these nouns may be either feminine or masculine. In this short paper, we highlight the similarity between Tore Nesset's work using Russian corpus data and our own experimental work investigating gender assignment to nonce nouns by Russian children and adults. We conclude with proposing some possible future research directions that could build on the cumulative results of Nesset's and our studies.

2. Background

In a number of empirical studies, our Tromsø research group on language acquisition and multilingualism – which has had several names over the past decade, e.g. LAVA and AcqVA (both acronyms for (Language) Acquisition Variation & Attrition) and currently Center for Language, Brain & Learning (C-LaBL) – we have documented that both monolingual and bilingual Russian-speaking children seem to learn the rules for gender assignment in Russian quite early, not only in cases where assignment is rule-governed, but also in cases where the gender cues are ambiguous (e.g. Rodina & Westergaard 2012, 2015, Mitrofanova et al. 2018, and Rodina et al. 2020). The Russian gender system is generally considered to be rule-based, in that the majority of nouns can be accounted for by the following three general rules: Nouns ending in consonants are typically masculine (e.g. *dom* 'house'),

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nouns ending in *-a* are typically feminine (e.g. *stená* 'wall'), and nouns ending in *-o* are typically neuter (e.g. *oknó* 'window'); see e.g. Hockett (1958), Corbett (1991). However, there are two classes of nouns in Russian where the final segment is an ambiguous gender cue; these are nouns ending in an unstressed vowel (schwa), which make them (in speech) ambiguous between feminine and neuter (e.g. *kníga* 'book', which is feminine, and *óblako* 'cloud', which is neuter) and nouns ending in palatalized consonants, which may be either masculine or feminine (e.g. *den'* 'day', which is masculine and *ten'* 'shadow', which is feminine).[1]

In our above-mentioned gender studies on monolingual and bilingual Russian-speaking children, the experimental stimuli were always existing nouns that the children were expected to know. This meant that it was unclear whether the children had actually acquired the gender rules of Russian or whether they had simply learned the gender of individual nouns in an item-based fashion (which must be a possible learning trajectory, given that there are gendered languages where there are few, if any, reliable gender rules, e.g. Norwegian; see e.g. Rodina & Westergaard 2013, 2021, Westergaard & Rodina 2016, Busterud et al. 2019, Lohndal & Westergaard 2021, cf. Urek et al. 2022). In order to investigate this question, Mitrofanova et al. (2021) carried out a study where monolingual and German-Russian bilingual children were exposed to novel nouns combined with pictures of inanimate items taken from the Novel Object and Unusual Name Database (NOUN, Horst & Hout 2016), e.g. *punip*, *bul'ga* and *glamo*, for the three general gender assignment rules. In addition, we included five items in the two ambiguous rule categories, i.e., nouns ending in unstressed vowels (e.g. *pruz-/schwa/*) and nouns ending in palatalized consonants (e.g. *dron'* and *knov'*). Our prediction was that, if the children had acquired the three general rules, they would prefer feminine in the nouns ending in unstressed vowels (as feminine is more frequent than neuter, and also tends to be acquired earlier , also with existing nouns; see e.g. Gvozdev 1961 or Ceitlin 2009). We further predicted that they would prefer masculine for nouns ending in palatalized consonants, given that nouns ending in plain consonants are typically masculine, and masculine is generally considered to be the default gender in Russian (Corbett 1991). In the next section, we focus on this latter subclass of Russian nouns.

[1] In addition, there are other exceptional noun classes in Russian where semantic rules override morphology, e.g. nouns ending in *-a* referring to males, which are always masculine (e.g. *papa* 'daddy') or hybrid nouns of the so-called 'common gender', which may have either masculine or feminine agreement depending on the biological gender of the referent (e.g. *vrač* 'doctor').

3. What do Russian Children Do with Nouns Ending in Palatalized Consonants?

The results of the Mitrofanova et al (2021) study showed that both the monolingual (N=87, mean age 5.2) and bilingual (N=64, mean age 6.16) Russian-speaking children generally obeyed the three general rules for gender assignment, producing masculine gender for novel nouns ending in consonants, feminine for novel nouns ending in (stressed) *-a*, and neuter for novel nouns ending in (stressed) *-o*. As predicted, they also defaulted to feminine with nouns ending in an unstressed vowel. But, contrary to our prediction and quite surprising to us, the children generally preferred feminine gender instead of defaulting to masculine with the novel nouns ending in palatalized consonants. If we had read Tore Nesset's (2003) article on the microvariation in gender assignment with Russian nouns ending in palatalized consonants, we would not have been so surprised. More about that below.

In order to check that this result was reliable, we carried out a follow-up study with only monolingual Russian children (N=85, age 3-7) with 13 novel items, ending in different palatalized consonants. This time, the results showed a clear distinction between different types of palatalized consonants, with a preference for masculine with some items, and a preference for feminine with other items. This is shown in the following figure (adapted from Mitrofanova et al. 2021: 61).

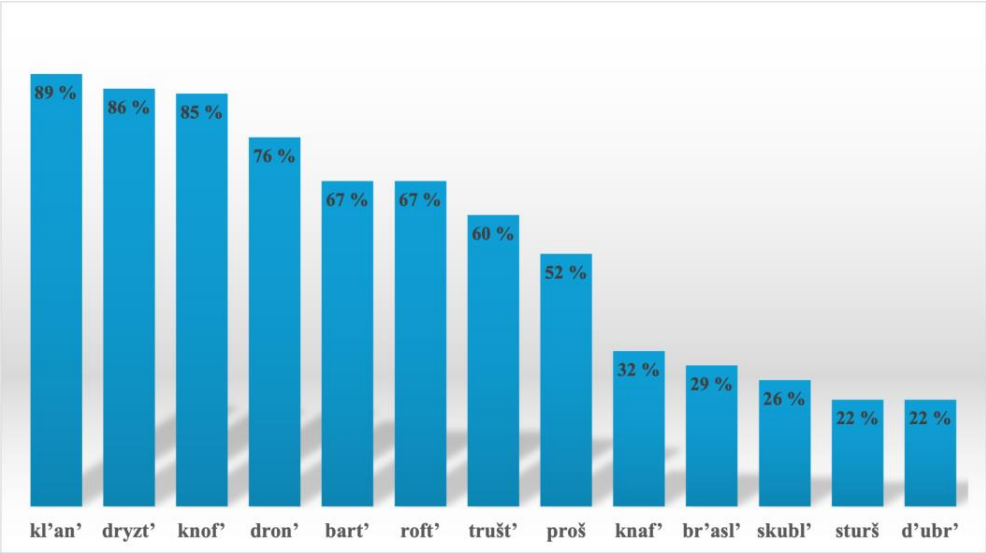


Figure 1. Percentage of feminine agreement with an extended set of nonce nouns ending in a palatal by monolingual Russian children (n = 85, 3–7-year-olds).

The five nonce nouns included in the original Mitrofanova et al. (2021) study were *proš, dron', knof', dryzt'*, and *kl'an'*, and as we can see from the figure above, four of these are clearly preferred with feminine gender (76-89%), and the fifth (*proš*) has a more or less equal distribution of masculine and feminine. Thus, the follow-up study confirmed that the children's choices were not random.

Furthermore, the distribution in the figure suggests that the preferred gender is linked to the type of final palatal segment: palatal stops tend to be associated with feminine, whereas palatal liquids more often trigger masculine agreement.

Another follow-up investigation of the 1,560 most frequent palatal-final nouns in the Russian National Corpus (of which approximately 40% are masculine) confirmed that the distribution of masculine and feminine gender with these nouns in the Russian language is dependent on the nature of the final segment, in combination with a few other factors such as stress and final nucleus. Importantly, the distribution of the two genders in the Russian language very closely matches the preference of the children.

This means that not only had the children in the Mitrofanova et al. (2021) study acquired the main gender cues in Russian; they were also sensitive to much finer-grained cues for gender assignment than the authors had anticipated. This finding lends support to the Micro-Cue Model of language acquisition (e.g. Westergaard 2009, 2014), which argues that young children do not learn language by setting large-scale parameters, but instead are sensitive to micro-variation in the input from early on.

4. What do Russian Adults Do?

Urek (submitted) ran a large-scale online experiment with 267 monolingual Russian-speaking adults, who were asked to classify orthographically presented novel palatal-final monosyllables as either masculine or feminine.



Figure 2. Example of stimulus presentation (from Urek, submitted)

The dataset comprised 1,648 novel monosyllabic items, created by combining 12 simplex non-shibilant palatal codas, 8 nuclei, and 20 simplex onsets, divided across 24 lists. Each participant evaluated the items in their assigned list twice, making it possible to compute test-retest reliability. The underlying assumption was that reasonably strong test-retest

consistency in gender judgments would reflect sensitivity to noun-internal cues to grammatical gender. In addition to the gender task, participants completed three background measures: a receptive vocabulary test, a digit span task, and a pattern detection task.

The results indicated that around 75% of the sample showed test-retest reliability above chance. This suggests that at least three quarters of participants consistently used noun-internal phonological information when assigning gender to novel nouns. These participants, labeled "analyzers", also scored higher than those whose reliability was at chance ("guessers") on all three background tasks. Urek (ibid.) concludes that one possible interpretation is that people with stronger pattern-detection abilities and larger receptive vocabularies are more likely to pick up on distributional regularities in their linguistic input.

Urek (ibid) also reports that even though responses show an overall preference for the feminine gender, the probability of assigning feminine gender to palatal-final nonce words can be consistently predicted from the phonological characteristics of the onset, nucleus, and coda. This pattern mirrors earlier experimental findings (Slioussar 2018) as well as our own previous results with monolingual and bilingual children (Mitrofanova et al., 2018, 2021) and reinforces the idea that probabilistic rule-based mechanisms guide the classification of nouns with ambiguous marking (Karmiloff-Smith 1979; Pinker 1984; see also Meylan et al. 2017 and McCauley & Christiansen 2019 for a discussion on the role of rule-based mechanisms in grammatical acquisition).

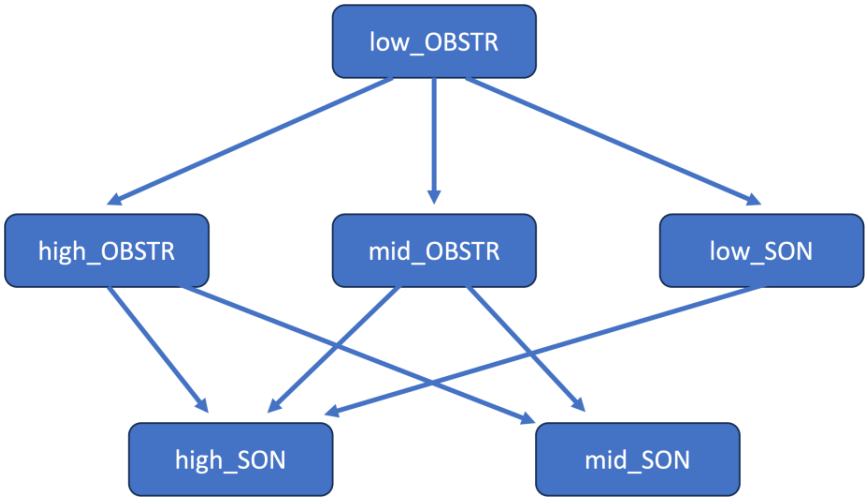


Figure 3. Likelihood of feminine response by rhyme (from Urek, submitted)

Crucially, differences between specific onsets, nuclei, and codas can be captured by broader phonological categories: obstruent codas, low vowels in the nucleus and continuant

onsets are significantly more likely to elicit feminine responses than sonorant codas, high nuclei, and non-continuant onsets, which aligns very closely with the corpus results reported by Nesset (see Fig 4. from Nesset (2003:308)). Moreover, when nuclei and codas are considered together as rhymes, their influences combine in an additive way. This pattern is illustrated in the Hasse diagram in Fig. 3 (fom Urek et al., submitted), where arrows represent statistically significant – and transitive – relationships. For instance, a rhyme in which a low vowel is followed by an obstruent (e.g., **-at**') is more likely to elicit a feminine response than a rhyme in which a low vowel is followed by a sonorant (e.g., **-an**'). By transitivity, both of these rhymes are more likely to trigger feminine agreement than rhymes in which a sonorant is preceded by a high or mid vowel (e.g., **-un**' or **-en**'). Note that because there is no arrow between **-un**' and **-en**', these two rhymes do not differ significantly in their likelihood of triggering feminine agreement. Although analyzers differentiate more finely among onset, nucleus, and coda types than guessers, both groups show the same overall direction of effects, and the trends seen for analyzers are never reversed in the guessers' data.

5. A Comparison of our Approach with Nesset (2003)

In this section, we examine both the differences and converging findings from Mitrofanova et al. (2021), Urek (submitted), and Nesset (2003). These studies employed distinct experimental designs, including tasks where children and adults were asked to assign gender to novel nouns (pseudowords) ending in a palatal consonant, as well as analyses of existing corpus data to assess generalizations based on the gender of existing nouns.

In Mitrofanova et al (2021), all included nouns were simplex monosyllabic nonce nouns. We avoided nouns that could be analysed as having a specific morphological suffix and used pictures of novel objects to accompany the audio prompts, ensuring that all nouns were interpreted as inanimate count nouns, thus isolating the effect of phonological (micro-)cues only. The study also reports on a corpus analysis of monosyllabic nouns ending in palatal consonants.

In Urek (submitted), all nouns were monosyllabic simplex nouns, while overlap with existing morphological cues (suffixes) was avoided. The stimuli were presented orthographically (hence words ending in /ž/, /š/, /č'/, /š'č'/ where the gender can be determined based on the presence/absence of the special soft sign were excluded). The stimuli were presented without accompanying pictures, and no semantic restrictions were put on the interpretation of the novel nouns.

Our focus on (morpho)phonological cues was motivated by the phonology-first proposal in language acquisition literature (see Culbertson et al. 2019; Gagliardi & Lidz 2014)

Corpus data with existing nouns and experiments with pseudowords/novel nouns suggest that children rely more on the phonological cues than semantic cues and even deterministic agreement cues (in case these are in mismatch to the probabilistic phonological cues). See examples from child corpora like *le maman* with masculine article used with a female referent 'mother' (Karmiloff-Smith 1979) or feminine adjective agreement with masculine nouns ending in –a like *papa* and *deduška* in Russian (Rodina & Westergaard 2012). Nesset (2003) took a more holistic approach than our more focussed studies. He analysed available corpus data identifying a hierarchy of morphological, semantic and phonological cues as predictors of grammatical gender and declension class in Russian. When discussing phonological cues for morphologically simplex inanimate nouns, Nesset proposed the following hierarchy of cues (see Fig. 4 from Nesset 2003: 309):

Final labial consonants favor feminine gender
Final post-alveolar consonants favor masculine gender
Alveolar consonants have a more complex hierarchy:
    Final obstruents favor feminine gender
    Nasal sonorants tend to favor feminine gender
    Oral sonorants: gender depends on the sonority of the penultimate segment:
        Consonant or high vowel: favor masculine gender.
        Non-high vowels: favor feminine gender

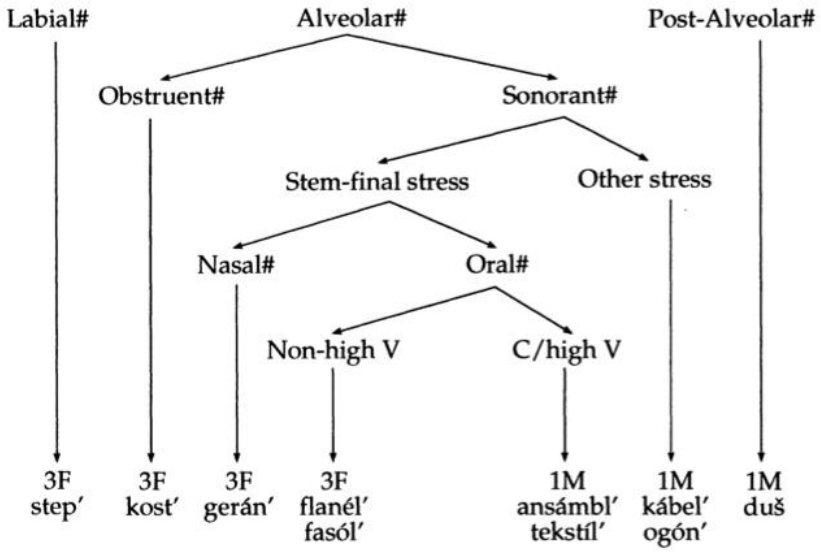


Figure 4. Overview of phonological generalizations, Nesset (2003).

Finally, another study that contributes both corpus analysis of existing nouns and experimental evidence on the gender and declension class of nouns ending in palatal consonants in Russian is Slioussar (2018). The most relevant experimental study reported in the paper investigated how adult Russian speakers assigned gender to nonce nouns ending in -b', -d', -s', -n', -l', and -r'. The results revealed a significant preference for masculine gender in nouns ending in -l' and -r', whereas nouns ending in -b', -d', -s', and -n' showed a feminine preference. Overall, the findings align with generalizations reported by Nesset (2003) and our own studies. Specifically, Slioussar (2018) observed that the majority of nouns ending in labials (p', b', v', f', m'), as well as alveolar obstruents (d', t', and s'), are feminine, while most nouns ending in r' and l' are masculine.

Taken together, all reviewed studies highlight that speakers of Russian (child and adult participants alike, monolingual as well as heritage bilingual children) are sensitive to microvariation in the input, using specific phonological properties as **(micro-)cues** to assign gender, in cases where traditional descriptions of Russian suggest ambiguity.

6. Future Directions

Below we propose some future research direction that in our view could be promising in advancing the understanding of gender assignment in nouns ending in palatal consonants.

First, it would be valuable to investigate the interplay between morphological and purely phonological cues. For example, the suffix -ost' is highly productive and strongly associated with the feminine gender in Russian. An experimental study could test whether human intuitions about novel nouns ending in -t' (but not -ost') align more closely with the overall proportions of all nouns ending in -t' in the corpus or with the proportions of nouns ending in -t' excluding those with the -ost' suffix. This would shed light on the relative weight of morphological versus phonological cues in gender assignment.

Second, future studies could incorporate semantic cues into experimental designs, building on Nesset's hierarchy of cues, which prioritizes morphological cues over semantic and phonological ones. By systematically manipulating semantic information, researchers could better understand how these cues interact with phonological and morphological factors in shaping gender assignment.

Third, a comparative approach could be taken to examine gender assignment in novel nouns between humans and AI systems. In a preliminary query conducted in January 2026 (see Appendix), we asked four AI systems (ChatGPT, ChatUiT, Gemini, and Claude) to determine the grammatical gender of 11 pseudo-nouns from the child survey reported on in Mitrofanova et al. (2021), as if they existed in Russian. The study originally has 13 nouns (see above), but to avoid orthographic cues, two nouns ending in -š were excluded from

the prompts. The systems' responses varied significantly. ChatGPT emerged as an outlier, assigning masculine gender to all 11 pseudo-nouns. ChatUiT's responses aligned with human judgments in 7 out of 11 cases, though it diverged in four instances: two nouns were identified as masculine by the system but feminine by humans, and two were identified as feminine by the system but masculine by humans. Gemini and Claude performed similarly, with both systems matching human judgments in 9 out of 11 cases. In both instances, the mismatched responses involved nouns assigned feminine gender by the systems but masculine by humans. Overall, Gemini's responses most closely approximated human intuitions, while ChatGPT deviated the most. However, all AI systems demonstrated some level of divergence from human judgments, highlighting the complexity of gender assignment and the limitations of current AI models in replicating human linguistic intuitions.

Finally, a cross-linguistic perspective could provide valuable insights by comparing gender assignment for nouns ending in palatal consonants across Slavic languages, including Ukrainian, Polish, and Czech. This could involve investigating microvariation within Slavic languages and examining how monolingual and bilingual speakers navigate co-existing systems of micro-cues. Such research could reveal both language-specific patterns and broader typological trends, as well as the potential influence of bilingualism and crosslinguistic influence on gender assignment processes.

By pursuing these avenues, future research could gain a more nuanced understanding of the factors influencing gender assignment in Slavic languages, while also shedding light on broader questions about the interaction of morphology, phonology, and semantics in mono- and bilingual language acquisition and processing.

7. Concluding Remarks

This chapter focuses on gender assignment in a special class of Russian nouns ending in palatal consonants, a class traditionally described as having ambiguous gender cues (compatible both with feminine and masculine gender). We compare findings from several experimental studies with Russian-speaking children and adults to the analysis proposed by Nesset (2003). Experimental tasks involving nonce words suggest that both children and adults are sensitive to very fine-grained phonological cues, with gender preferences varying (non-randomly) by the type of final consonant. These findings align with Tore Nesset's (2003) analysis pertaining to phonology, highlighting the role of fine-grained phonological **micro-cues** in gender assignment.

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Appendix

AI responses to the query about the nouns клянь, дрысть, кнофь, дронь, барть, рофть, трушть, дюбрь, кнафь, брясль, скубль (red marks misalignment with human responses), January 2026:

ChatUiT

Клянь — скорее мужской род, по аналогии со словами "день", "огонь".
Дрысть — скорее женский род, по аналогии со словами "грусть", "честь".
Кнофь — скорее женский род, по аналогии со словами "кровь", "любовь".
Дронь — скорее мужской род, по аналогии со словами "конь", "огонь".
Барть — скорее женский род, по аналогии со словами "дверь", "твердь".
Рофть — скорее женский род, по аналогии со словами "мощь", "печь".
Трушть — скорее женский род, по аналогии со словами "честь", "грусть".
Дюбрь — скорее мужской род, по аналогии со словами "январь", "сентябрь".
Кнафь — скорее женский род, по аналогии со словами "кровь", "твердь".
Брясль — скорее женский род, по аналогии со словами "мысль", "пыль".
Скубль — скорее мужской род, по аналогии со словами "уголь", "шкворень".

ChatGPT

Все приведённые формы:
клянь, дрысть, кнофь, дронь, барть, рофть, трушть, дюбрь, кнафь, брясль, скубль
односложные или квазикорневые, без суффиксов, характерных для ж. р. (-ость, -есть, -ань, -ынь и т. п.), фонетически напоминают мужские существительные типа гвоздь, дождь, рыцарь (основа).
По умолчанию они будут интерпретированы как существительные мужского рода.

Gemini

Слово	Род
Клянь	Женский
Дрысть	Женский
Кнофь	Женский
Дронь	Женский
Барть	Мужской/Женский
Рофть	Женский
Трушть	Женский
Дюбрь	Мужской
Кнафь	Женский
Брясль	Женский
Скубль	Мужской

Claude

Женский род (наиболее вероятный):
клянь → по аналогии с длань, рань, дань — ж.р.
дрысть → суффикс -сть почти всегда женский (кость, власть, страсть) — ж.р.
кнофь → как морковь, бровь, кровь — ж.р.
дронь → как бронь, вонь, благовонь — ж.р.
барть → существует архаичное слово борть (дупло для пчёл) — ж.р.
рофть → по аналогии с редкими словами на -фть — ж.р.
трушть → по модели -сть/-шть — ж.р.
дюбрь → как дробь, скорбь, хворь — ж.р.
кнафь → как гарь, тварь, дрянь — ж.р.
Мужской род (менее типичный):
брясль → по аналогии с мысль (ж.р.), но скорее с кисель — м.р.
скубль → как рубль, костыль, ковыль — м.р.

Эссе

Русские языковые знаки

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Введение: сеть зависимостей

Основой предложенной здесь системы является построенная в духе московской семантической школы сеть зависимостей, узлы которой заняты языковыми знаками: предикатами и актантами. Минимальную структуру, содержащую только один предикат, называю атомом. Атом представлен в виде линейной цепочки. Внутри атома предикат отмечается специальным цветом. Конкретные и абстрактные актанты отмечены другими цветами. Четвертый цвет используется для безузловых слов. Сразу покажу пример:

Мы надеемся на успех.

Предикат *надеемся* имеет два актанта, один конкретный, местоимение *мы*, и один абстрактный, существительное *успех*. Предлог *на* в этом примере является частью структуры, но не занимает узла и тем самым не находится в отношении зависимости. Такой знак я называю коннектором. Противопоставление конкретный / абстрактный присуще только актантам. Предикаты всегда абстрактны, для коннекторов данное противопоставление нерелевантно.

Языковые выражения часто составлены из более, чем одного атома. Например, в предложении *Собака лает громко* присутствуют два атома. В моей системе каждый из них занимает отдельную строку:

1. Собака громко лает.
2. Собака громко лает.

Узел *лает* является в первом атоме актантом, во втором – предикатом. Слова, которые не участвуют в актуальном атоме, цветом не выделяются. Атомы пронумерованы; тем

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самым показываю, что они вместе образуют более крупную структуру. Упорядочение атомов определяется линейной позицией предикатов в исходном выражении.

Одним атомом могут быть охвачены две сепаратные синтаксические структуры, например:

Мне холодно. – Мне тоже.

Актанты предиката *тоже* выражены одним и тем же словом, но они, конечно, не кореферентны.

Семантическая сеть показывает свойства, относящиеся к плану содержания языкового знака. Для представления более простого плана выражения приходится использовать другие средства (в основном, как мы увидим, скобки и кавычки). Различаю пять типов выражения: слова, инкорпорированные знаки, флексионные знаки, несегментные знаки и имплицитные знаки. Приведенные до сих пор анализы содержат только знаки самого эксплицитного типа, т.е. слова. Рассмотрим сначала более подробно этот тип, потом обратимся к остальным.

Слова (синтаксические знаки)

Главное свойство предиката – это его валентность, т.е. число подчиненных ему актантов. Этим свойством обладают все предикаты, в том числе, конечно, и слова. Так, существуют два разных предиката *не*, одноместный:

Она тебя не любит.

и двухместный:

Она любит не тебя, а меня.

Есть, кстати, еще один предикат *не*, одноместный и всегда под ударением:

Денег у меня не было.

Мне не с кем советоваться.

Для этого предиката существуют алломорф *нет* и антоним *есть*:

Денег у меня нет.

Мне есть с кем советоваться.

Ниже будем обращать особое внимание на темпоральные предикаты. Темпоральными называю духместные предикаты, которые соотносят свои актанты на временной оси как совпадающие или последовательные, например:

Пока дети еще спали, я готовила завтрак.

После его ухода всем стало легче.

Не отмечается специально такая темпоральность, которая является побочным, дополнительным значением предиката. Например, в следующей паре тип временного соотношения – совпадение / последовательность – определяется видом глагола:

Она сидела и курила.

Он встал и пошел.

А в следующей паре два разных глагола устанавливают последовательное, но противоположное, временное соотношение между предикатом и абстрактным актантом:

Он обещал ей звонить.

Он устал ей звонить.

Приведенные до сих пор примеры относятся к уровню предложения (или выше). Теперь обратимся к уровню словосочетания. Предикатом может быть или главное, или подчиненное слово. В первом случае речь часто идет о существительном, образованном от прилагательного или глагола:

свежесть воздуха

близость победы

изобретение колеса

командование полком

завоевание русскими Казани

В словосочетании

глубина озера

предикат является параметром. Он двухместный, что видно в альтернативном словосочетании

озеро глубиной в сто метров

Здесь реализация второго актанта обязательна. Можно составить предложение, где обходимся без коннектора при втором актанте:

Глубина озера – сто метров.

В словосочетании *сто метров* числительное одноместное, но может осуществляться и двухместная валентность:

двое из братьев

Здесь первый актант нереализован. Второй актант может также, при специальных синтаксических условиях, иметь форму родительного падежа:

Нас было четверо. (ср. There were four of us.)

Женщин пришло две. (ср. Av kvinnor kom det två.)

Неизменная двухместность свойственна предикатам типа *цель*, *причина*, но для реализации второго актанта требуется контекст связочного предложения:

причина аварии

Причина аварии – высокая скорость.

Как мы видели в примере *озеро глубиной в сто метров*, роль предиката может выполнять и определение. Вот еще примеры:

камера хранения

предмет исследования (или: предмет исследования)

Статус коннектора довольно неустойчив. Следующие пары иллюстрируют приобретение или лишение статуса коннектора одним и тем же словом:

Снег идет.	Дождь идет.
цвет платка	платок синего цвета
цель поездки	Цель поездки – Лондон.
Кольцо сделано из золота.	кольцо из золота
семь из шведов	семь шведов из десяти

Инкорпорированные знаки

Инкорпорированный знак – это сегмент слова. Такой сегмент выделяется при помощи угловых скобок. Например, знак *старик* содержит в себе другой знак, выраженный инкорпорированным в него сегментом <*стар*>. Эти два знака образуют атом:

<стар>ик

Что касается обозначения цветом, допускается следующее упрощение: все слово *старик* является конкретным знаком, но соответствующим цветом отмечена только та часть, которая находится вне скобок. В следующем примере актант инкорпорирован в предикат:

<снего>пад

Сочетание связанного и свободного знака можно превратить в парафразу, где оба знака свободные. Но при этом свободный знак приходится заменить его гиперонимом: не *старый старик*, а *старый человек*, не *снегопад снега*, а *Падает снег*. Вот другие примеры, где заменен глагол:

<золот>ить	покрывать золотом
<суш>ить	делать сухим
<сох>нуть	становиться сухим

за<молчать> начать молчать

Могут быть реализованы более, чем один актант:

<судо><строи>тель

<водо><храни>лище

<Под><москов>ье

Иногда в изменяемом слове инкорпорацией охвачена вся основа; тогда для цветового обозначения слова остается только окончание:

<нош>а

<мы><л>о

<трубо><чист>-∅

<одесс><ит>-∅

<при><город>-∅

Атом с инкорпорацией может также быть выражен словосочетанием:

<жи>тель Москвы

<изобрет>ение Эдисона

<командова>ние полка

<мам>ино платье

<золот>ое кольцо

<под><вод>ная лодка

А вот примеры, содержащие темпоральные предикаты:

<вечер>няя прогулка

<после><воен>ная политика

Инкорпорированный коннектор отдельным цветом не обозначается (цвет коннектора используется только для свободных знаков, т.е. слов):

производитель действия (ср. произвести действие)

Если изменяемое слово содержит инкорпорированный знак, то он обычно находится в пределах основы (как было показано выше). Но есть исключения. Первое исключение касается суффиксов, при помощи которых образованы «островки неизменяемости» в парадигмах глаголов и прилагательных: *узна<в>*, *молож<е>*. Второе исключение касается сложных окончаний, которые встречаются, прежде всего, у прилагательных и причастий. Здесь первый компонент окончания инкорпорирован: *тиш<айш>ий*, *разби<т>ый*. Сегменты, прикрепленные к глаголу, темпоральны; они выражают последовательность или совпадение:

Узна<в> об этом, он сразу ей позвонил.

Они разговаривали леж<а>.

Видишь упа<вш>ее дерево?

Он смотрел на пада<ющ>ие листья.

Флексионные знаки

Теперь обратимся к флексионным знакам. Они часто являются коннекторами и, следовательно, специально не отмечаются. Но они могут быть помещены в узлах. Тогда они отмечаются цветом предиката или актанта, и выделяются скобками, но уже не угловыми, а квадратными. Внутри скобок находим не фонемное представление, а морфологическое: сокращения терминов. Здесь рассмотрим только две разновидности: глагольную флексию и падежные окончания.

В личных бесподлежащных предложениях, включая неопределенно-личную конструкцию, роль эксплицитного выражения первого актанта выполняет окончание глагола, например:

Знаешь[2sg] моего брата?

Не ждали[3pl].

Говорят[3pl], здесь все очень дорого.

В безличных предложениях глагольное окончание актантом не является, но в одной специальной конструкции оно выполняет функцию одноместного предиката. Речь идет о пресловутой в русской грамматике «стихийной силе»:

1. Лодку унесло течением.

2. Лодку унесло[3sg] течением.

Среди глагольных окончаний находим также двухместные предикаты:

Он лег спать[INF] рано.

Живи[IMP] еще наш отец, все было бы по-другому.

Теперь о падежах. Если падежное окончание не является коннектором, оно функционирует как предикат. Все падежи, за исключением предложного, могут иметь эту функцию. Родительный в словосочетаниях имеет разнообразную функцию:

кусок льда[GEN]

автор книги[GEN]

картина Репина[GEN]

зал ожидания[GEN]

состояние невесомости[GEN]

Дательный выражает поссессивность (в широком смысле):

Он поцеловал ей[DAT] руку.

Миру[DAT] мир!

При выражении предикативной связи соперничают именительный и согласовательный:

фамилия Петров[NOM]

инженер Петров[AGR]

Преобладают двухместные предикаты, но встречается и другая валентность:

Была ночь[NOM].

Она сидела нога[NOM] на ногу и курила.

Он разрубил полено топором[INS].

Темпоральные падежные предикаты осуществляют только совпадение:

Мы вас ждем уже три[ACC] часа.

минута молчания[GEN]

день отъезда[GEN]

Он приедет первого[GEN] марта.

Москва ночью[INS]

Он вернулся <стар>иком[INS].

Несегментные знаки

Теперь очередь дошла до несегментных знаков: порядка слов и интонации. Инверсия представляется следующим образом:

Мы будем сидеть ряду в пятом[INV].

Значит, используются те же скобки, как для флексионных знаков. Данный знак прикреплен к числительному. Это одноместный предикат, как и его эквивалент *приблизительно*. Существует, но не в русском языке, другой вариант инверсии, двухместный и прикрепленный к глаголу. Пример из шведского языка беру у Бельмана:

... fick[INV] jag sådan flicka, gifte jag mig just på stunden nu.

Важная функция интонации – указать акт речи. Ради упрощения совмещаю здесь утверждение, вопрос и побуждение в один знак: [S] (speech act). Он трехместный, что видно при его замене соответствующим сегментным знаком:

Я говорю тебе, что он болен.

Но при несегментном предикате обычно реализуется только один актант, рема предложения:

Он болен. [S]

Этот предикат не имеет определенной локализации, поэтому он помещается в конце цепочки, после пробела. Вот еще примеры:

Летят журавли. [S]

Кто пришел? [S]

Вера больна? [S]

Дров было много. [S]

Он стар<ше> меня. [S]

Акт речи может также выступать в роли актанта. Он в таком случае означает момент речи (”point of speech”) и широко употребляется для выражения категории времени, например:

Вера болеет[PS]. [S]

Вера приедет[PS]. [S]

Здесь ввожу новое морфологическое сокращение: PS (praesens). Это глагольное окончание без учета лица и числа. Осуществление этим предикатом совпадения (настоящее время) и последовательности (будущее время) зависит, как известно, от вида глагола. Акт речи в роли актанта встречается и при других видах темпорального предиката:

Я буду работать усердно. [S]

Vera var[PT] sjuk. [S] (PT = praeteritum)

Вера боле<л>а. [S]

¡Venc<er>emos! [S]

Для представления т.наз. перфектного значения требуются два атома:

1. Враг ∅[PS] побежден. [S]

2. Враг ∅[PS] побежд<ен>.

Знак [PS] в первом атоме предикат, во втором – актант. Ту же структуру имеет шведский эквивалент *Fienden är besegrad*, но если глагол непредельный, обходимся без второго атома:

Fienden är[PS] hatad. [S]

В сложных предложениях иногда появляются несколько темпоральных предикатов:

1. Видно бы<л>о, что она плакала. [S]

2. Видно было, что она плака<л>а.

1. Узна<в>, что она болеет, он сразу ей позвонил.
2. Узнав, что она болеет[PS], он сразу ей позвонил.
3. Узнав, что она болеет, он сразу ей позвони<л>. [S]

1. Когда мы приедем, вся еда будет съедена.
2. Когда мы приедем, вся еда будет съедена. [S]
3. Когда мы приедем, вся еда будет съед<ен>а.

Некоторые предикаты, однако, требуют, чтобы их вторая актантная позиция была заполнена именно моментом речи. Сюда относятся наречия *вчера*, *завтра* и прилагательное *прошлый*. При их появлении глагольное окончание теряет свой статус:

Вера приедет завтра. [S]

В сложных конструкциях такие предикаты могут вызвать дублирование актанта [S]:

1. Вера сказа<л>а, что приедет завтра. [S]
2. Вера сказала, что приедет завтра. [S]

Ведь не исключено, что она сказала: *Я приеду послезавтра*.

Имплицитные знаки

Остался последний тип, имплицитные знаки. В них план выражения пустой, физическая манифестация полностью отсутствует. Для обозначения таких знаков использую русские кавычки, похожие на двойные угловые скобки. Внутри них помещаются эксплицитные эквиваленты, если такие есть, или просто символ ∅.

Особенно интересны случаи с имплицитным предикатом. В атоме должен присутствовать по меньшей мере один эксплицитный актант, например:

топор «использовать» «рубить»

Далее рассмотрим, однако, только структуры с двумя экслицитными актантами. Сюда относятся, например, атомы с важным предикатом кореференции:

Ребенок спит. – Это хорошо. «т.е.»

Я сижу в <с>воем саду. «т.е.»

Инкорпорированный знак <с> – алломорф личного возвратного местоимения *себя*.

И внутри производного слова может быть спрятан имплицитный предикат:

1. <камеш><ек>-∅
2. <камеш>ек «это»

Кроме одноместного предиката первого атома нам нужен еще двухместный предикат, который объединяет гипероним *камень* и гипоним *камешек*. Как эксплцитный вариант годится местоимение *это*. Вот еще один подобный анализ:

1. <водо><пад>-∅
2. водо<пад>-∅ «где»

Ср. парафразу ”место, где падает вода”.

Некоторые имплицитные предикаты более богато представлены в шведском языке, чем в русском. Например, в шведском обстоятельсто времени часто присоединяется без эксплицитного предиката, а для обстоятельства меры это правило. Так, русским примерам

В ту ночь я спал плохо.

Он на два года молож<е> меня.

соответствуют следующие шведские предложения:

«∅» Den natten sov jag dåligt.

Han är «∅» två år yng<re> än jag.

Эквивалентность знаков

Понятие синонимии традиционно применяется только к словам одной части речи. Для знаков любых типов и уровней с идентичным планом содержания, но различным планом выражения лучше годится термин эквивалентность. Данным отношением охвачены члены таких пар, как *<c> = себя, [GEN] = написать* (пример *картина Репина*), *[INV] = приблизительно, «это» = это*, где один из членов представлен словом, наиболее однозначным и прозрачным типом знака. Но эквивалентная пара не обязательно должна выглядеть так. Это можно показать на примере пар, выявленных сравнением исходного выражения с его парафразой или толкованием:

<одесс><ит>-∅

<жи>тель Одессы

<топор><ищ>е

рукоятка топора[GEN]

<мы><л>о

то, чем[INS] моют

Здесь налицо эквивалентные пары трех типов: 1. *одессит = житель*, *топорище = рукоятка*, *мыло = что*; 2. *<одесс> = Одесса*, *<топор> = топор*, *<мы> = мыть*; 3. *<ит> = <жи>*, *<ищ> = [GEN]*, *<л> = [INS]*.

Peer-reviewed article

Russia and Norway on Svalbard in Russian Media: Morphosyntax and the Construction of Arctic Actors

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Abstract

This study examines how the Russian mainstream newspaper *Rossijskaja Gazeta* represented Russia and Norway in the context of Svalbard during 2022–2025. Svalbard is a Norwegian Arctic Archipelago with a unique legal status that allows other countries, including Russia, to conduct economic activity there. Using Keymorph Analysis, grounded in Corpus-Assisted Discourse Studies and Cognitive Linguistics, the study investigates how grammatical case patterns shape portrayals of the two states. The main findings show that both actors are depicted as intentional and proactive: Norway as the sovereign and regulatory authority, and Russia as a legitimate economic actor on the archipelago. Across this discourse, their relationship is often framed as oppositional. Norway appears as a strong, often negatively evaluated force that initiates changes and thus determines outcomes, while Russia is portrayed as a weaker reactive force constrained by Norwegian actions but still attempting to act.

1. Introduction

Svalbard is a Norwegian Arctic Archipelago with a unique legal status that allows other countries, including Russia, to conduct economic activity there. The archipelago occupies a particularly significant position in relations between Norway and Russia, and more broadly between NATO and Russia, since Russia maintains its settlement, Barentsburg, on the archipelago, and since Svalbard lies in close proximity to the Russian Northern Fleet on the Kola Peninsula (Østhagen 2024: 2). Russia's long-standing argument about its special status on Svalbard, which has been used with

varying intensity to pressure Norwegian authorities, is widely perceived in Norway as an attempt to challenge Norway's sovereignty over the archipelago (Myklebost & Bones 2025). Russia's claims, grounded in its continuous presence on Svalbard and its historical connection to the archipelago, are undoubtedly receiving close attention in light of the escalation of the Russo-Ukrainian conflict in February 2022.

As one of the central actors in this geopolitical constellation, Russia's self-perception and its representations of other actors in the Svalbard context are essential for understanding contemporary security and threat narratives – narratives that are inevitably shaped by and conveyed through language. This study adopts a linguistic perspective grounded in Cognitive Linguistics and Corpus-Assisted Discourse Studies (CADS) to examine how Russian media discourse, namely the official daily newspaper *Rossijskaja Gazeta*, constructs Russia and Norway in the context of Svalbard starting from the year of escalation of the Russo-Ukrainian conflict, namely from 2022. The study employs Keymorph Analysis (Fidler & Cvrček 2019; Janda et al. 2023), a method for exploring the semantic roles of morphosyntactic features in discourse. This method demonstrates how grammar can be utilized for a deep understanding of language in political discourse and securitization analyses (Janda et al. forthcoming). Previously Keymorph Analysis was applied to examine the use of voice and case in the language of the Russian news and opinion portal *Sputnik Czech Republic* (Fidler & Cvrček 2018) and the use of parts of speech, case, number, and person in the language of speeches of Czech(oslovac) presidents (Fidler & Cvrček 2019). The method has been extended to Russian-language data through an analysis of case usage in Vladimir Putin's official speeches before and after the escalation of the Russo-Ukrainian conflict in 2022 (Janda et al. 2023; Janda et al. forthcoming).

Keymorph Analysis was also earlier used to examine the coverage of Svalbard, specifically the construction of images of Russia, Norway, and Svalbard, in a range of Russian mainstream and regional media outlets between 2010–2021 in Obukhova (2024). Obukhova's study divided the corpus into four broad periods which was useful for tracing long-term tendencies. However, this approach can neglect short-term linguistic fluctuations that may correspond to key political developments. The present study addresses this limitation by conducting a year-by-year analysis of Russian media discourse on Svalbard after 2021. This finer temporal approach may enable a more detailed account of how Russia's linguistic framing of actors in the Svalbard context evolves in direct response to specific geopolitical events, thereby offering a more dynamic picture of ongoing processes of meaning-making and securitization in Russian political and media language.

The present analysis focuses exclusively on *Rossijskaja Gazeta* (hereafter referred to as *RG*) – the official daily newspaper of the Russian government, which can be regarded as an instrument of policy legitimization and implementation. Widely perceived as a serious and authoritative mainstream outlet, *RG* maintains a strong online presence and

ranks among the ten most-cited newspapers in Russia, providing direct access to officially endorsed views on the Arctic disseminated to Russian society (Moen-Larsen & Gjerde 2023: 2). Adopting a single-outlet approach within this study ensures editorial and ideological consistency and controls for stylistic variation. This design also contributes by offering a complementary perspective on Russia's discursive construction of Svalbard-related actors, in contrast to the comparative analysis across media groups (federal vs. regional outlets) conducted in Obukhova (2024).

The implementation of Keymorph Analysis and the approach to the data used in this study are described in more detail in Section 2. The results of the quantitative analysis and in-depth text study are presented in Section 3. Section 4 discusses the main findings and draws conclusions.

2. Method and data

Keymorph Analysis relates to CADS and is regarded as an extension of Keyword Analysis (Janda et al. 2023: 21). Keyword Analysis reveals keywords – prominent words having significantly higher frequency in one corpus as compared to the frequency of this word in another corpus (Scott 1998: 71). Keymorph Analysis reveals prominent morpho-syntactic features (keymorphs) in a target corpus when compared to a reference corpus. While keywords serve as indicators of the content and style of a text (Scott & Tribble 2006: 55), keymorphs help to understand discourse structure – "the representation of events and participants in discourse, especially the degrees of agency expressed in texts" (Fidler & Cvrček 2018: 199). Grammatical case of nouns is particularly helpful for determining representations of discourse participants since it reveals certain roles of corresponding discursive actors – agents, patients, possessors, locations, etc. (Janda et al. forthcoming).

The Russian language has six grammatical cases, each of them having their own semantic associations. An overview of these associations or meanings relevant to this study is given in Table 1.

Case	**Schematic Meaning**	**Central Meanings**	**Short description**
Nominative (NOM)	Prominent entity	1. Name	Grammatical subject, often agent in active sentences
		2. Identity	Title of entities
Genitive (GEN)	Point of reference	1. Source	Indicated by prepositions *iz, s, ot* ('from')
		2. Goal	Indicated by prepositions *do* 'until', *dlja* 'for', *radi* 'for', *protiv* 'against'
		3. Whole	Something existing as part of a larger unit

Dative (DAT)	Entity with a sphere of influence	1. Receiver	Indirect object of verbs meaning 'give'
		2. Experiencer	Receiver of something in the form of harm, benefit, belonging, etc.
		3. Competitor	Indicated by prepositions *k* 'toward' and *po* 'along', 'on', 'around'
Accusative (ACC)	Target	1. Destination	a) Marks a direct object; or b) Indicated by prepositions *v* 'into', *na* 'onto', *za* 'beyond', *pod* 'under'
		2. Dimension	Indicated by prepositions *skvoz'* 'through', *čerez* 'across'
Instrumental (INS)	Accessory	1. Means	Agent in passive constructions
		2. Adjunct	Indicated by preposition *s* 'with'
		3. Landmark	Indicated by prepositions *nad* 'above, over', *pod* 'under', *pered* 'in front of', *za* 'behind', and *meždu* 'between'
Locative (LOC)	Place	Place	Indicated by prepositions *v* 'in', *na* 'on', *pri* 'at', *o* 'about'

Table 1. Semantic associations of Russian grammatical cases (based on Janda et al. 2023; Janda et al. forthcoming)

In this study, Keymorph Analysis is applied to identify the representations of two discourse participants, namely Russia and Norway. These representations are investigated by examining the saliency of the grammatical cases of the corresponding nouns *Rossija* 'Russia' and *Norvegija* 'Norway'. These particular words were chosen because Russia and Norway appear as important actors associated with Svalbard in Russian media discourse between 2010 and 2021 as demonstrated in Obukhova (2024: 82).

The data for this study was extracted from the data base Integrum (n.d.). The target corpora were extracted using the query *Špicbergen OR Sval'bard*. The form *Špicbergen* is the Russian adaptation of the historical Dutch name *Spitsbergen* traditionally used to refer to the entire Svalbard archipelago. The Norwegian name *Svalbard* also appears occasionally in Russian media pronounced as *Sval'bard*. Including both variants ensured comprehensive coverage of relevant articles.

The study used four corpora of target texts, corresponding to each year after 2021: 2022 (from the beginning of the year), 2023, 2024, and 2025 (until the end of September 2025, the time of writing this article). Since my approach was to focus on texts directly related to Svalbard and avoid those that only mentioned Svalbard in passing, I first conducted keyword analysis to select texts containing *Špicbergen* as a prominent keyword.[1]

[1]The noun *Sval'bard* never appeared as a prominent keyword in any of the four target text corpora.

To obtain a list of keywords, each target subcorpus was compared to the reference corpus – a subcorpus of the Araneum Russicum Russicum Minus (Russia-only Russian) – of the size of almost 39,900,00 words (52,241,600 tokens) (Benko 2014; Benko & Zakharov 2016). The reference corpus, compiled in 2015, contains text downloaded from the web. As in Obukhova (2024), the obtained keywords were sorted out by the following parameters: the statistical significance measured by the p-value of the log-likelihood test, the effect size measured by Difference Index (DIN), and the minimum frequency of a keyword in the target text. The parameters used for sorting out the keywords are the following: log-likelihood test (p-value < 0.05), DIN > 75, the minimum frequency of a keyword in a target text > 1.[2] The keywords selected according to these parameters were regarded as prominent.

The following step was conducting of Keymorph Analysis on the texts containing *Špicbergen* as a prominent keyword. The reference corpus used for this method is the main corpus of the Russian National Corpus (RNC) (n.d.). Since Keymorph Analysis is based on the premises that a reference corpus can be regarded as representing the language "norm", RNC represents a good choice for this task due to its representativeness and accuracy of morphological annotation. The main corpus of RNC represents Russian written texts of various genres from the 18th century to our time. As RNC provides an opportunity for selecting texts of a certain period, I used the periodization of 2010–2021 which matches the periodization of RNC in Obukhova (2024: 84).

Corpus	**Number of words**
Target texts: RG 2022	12,950
Target texts: RG 2023	8,516
Target texts: RG 2024	7,263
Target texts: RG 2025	6,461
Reference corpus: RNC	25,048,968

Table 2. The corpora used for Keymorph Analysis and their size

Keymorph Analysis uses Difference Index (DIN*) which is an effect size metric. To obtain DIN*, one should first calculate relative frequencies for it. The calculation of relative frequencies for DIN* is based on the raw frequency of a given inflected wordform (e.g., of the Dative case of a word A) relative to all occurrences of the correspondent lemma in the corpus (all forms of a word A).[3] Thus, to calculate DIN*, one must first obtain relative frequencies using the following formula:

RelFq*(Ttxt) = AbsFq(Ttxt) / AbsFq(lemma inTtxt)

[2] More details about the calculations are provided in Obukhova (2024: 52–53).

[3] The distribution of the grammatical cases of the nouns *Rossija* and *Norvegija* in raw frequencies in the target texts and reference corpus are provided in Appendix 1 and Appendix 2, respectively.

and

RelFq*(RefC) = AbsFq(RefC) / AbsFq(lemma in RefC)[4]

DIN* is calculated according to the following formula:

DIN* = 100 x [RelFq*(Ttxt) - RelFq*(RefC)] / [RelFq*(Ttxt) + RelFq*(RefC)]

Positive DIN* values (above 0) and negative DIN* values (below 0) can be interpreted as indicating certain deviations from the language "norm" (the reference corpus): overrepresentation or underrepresentation of a use of a particular grammatical case. These deviations can be interpreted as contributing to the formation of certain representations of certain discourse participants marked by corresponding nouns.

3. Analysis

The DIN* values for grammatical case use for the nouns *Rossija* 'Russia' and *Norvegija* 'Norway' examined in this study are presented in Table 3. The extreme DIN* values, both positive and negative, are shown in bold. By extreme DIN* values, I mean those that are 20 and above or -20 and below. The same results are visualized in Figure 1 (Section 3.1) and Figure 2 (Section 3.2) for each noun separately. The DIN* values in Table 3 show both consistent and inconsistent results for both nouns. For example, 'Russia' is consistently found to be extremely underrepresented in the Locative case (DIN* -53.531 in 2022, DIN* -51.802 in 2023, DIN* -42.495 in 2024, DIN* -20.572 in 2025). At the same time, 'Russia' is extremely overrepresented in the Accusative case in 2024 (DIN* 24.771), while underrepresented in the same case in other years (DIN* -33.333 in 2022, DIN* -7.190 in 2023, DIN* -18.841 in 2025). Table 3 also demonstrates gaps in the results caused by the non-use of some cases, especially after 2023. For example, none of the nouns were used in the Dative case in 2024 and 2025. In Sections 3.1 and 3.2, I will show the dynamics of case use for each of the nouns and describe the representations of the corresponding discourse participants caused by the overrepresentations of cases, using examples.

[4] Abbreviations used in the formulas:
RelFq*(Ttxt) = relative frequency of an item (here a grammatical case of a specific noun, e.g., the Dative case of the noun 'Russia') in the target text,
AbsFq(Ttxt) = frequency of the item in the target text,
AbsFq(lemma in Ttxt) = frequency of the specific noun in all grammatical cases in the target text/corpus,
RelFq*(RefC) = relative frequency of an item (here a grammatical case of a specific noun, e.g., the Dative case of the noun 'Russia') in the reference corpus,
AbsFq(Refc) = frequency of the item in the reference corpus,
AbsFq(lemma in Refc) = frequency of the specific noun in all grammatical cases in the reference corpus.

	2022		2023		2024		2025	
Case	DIN* *Rossija*	DIN* *Norvegija*	DIN* *Rossija*	DIN* *Norvegija*	DIN* *Rossija*	DIN* *Norvegija*	DIN* *Rossija*	DIN* *Norvegija*
Nom	**25.964**	-1.633	**42.515**	**-63.279**	**-22.553**	N/A	**31.754**	**-38.333**
Gen	14.754	12.769	8.197	-5.995	**27.200**	18.343	9.901	**31.818**
Dat	17.308	**-57.143**	N/A	**58.294**	N/A	N/A	N/A	N/A
Acc	**-33.333**	**-23.810**	-7.190	17.460	**24.771**	N/A	-18.841	17.460
Ins	**35.556**	**61.026**	10.769	**62.927**	N/A	**73.611**	N/A	N/A
Loc	**-53.531**	**-43.860**	**-51.802**	**-37.815**	**-42.495**	0.806	**-20.572**	**-37.815**

Table 3. DIN* values of grammatical case usage for the nouns* Rossija *and* Norvegija *in the target text corpora

3.1 Russia

Figure 1 (a partial visualization of Table 3) shows that 'Russia' is overrepresented in five cases: Nominative, Genitive, Dative, Accusative, and Instrumental, although the year-by-year distributions within these cases are not necessarily consistent.

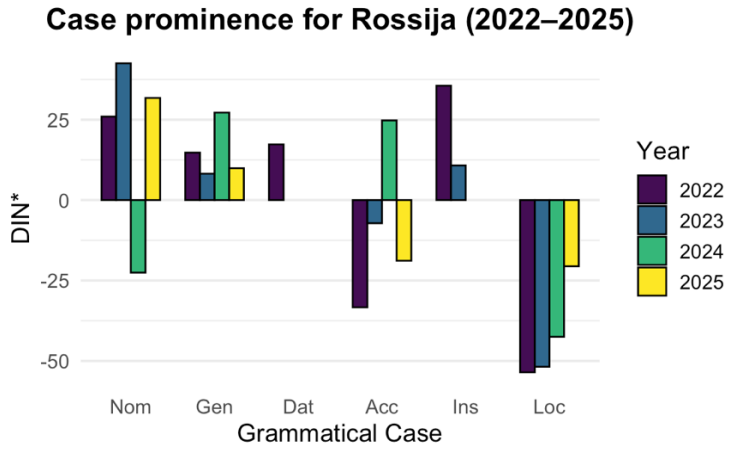


Figure 1. Visualization of prominence of grammatical case for 'Russia', given in DIN* values

'Russia' is very prominently used in the Nominative case in 2022 (DIN* 25.964), 2023 (DIN* 42.515), and 2025 (DIN* 31.754), but not in 2024 (DIN* -22.553). These numbers imply that 'Russia' is almost consistently represented as a prominent entity. In 2022, occurrences of 'Russia' in the NAME meaning of the Nominative case are associated with predicates that vary significantly in agentivity thus assigning various representations to 'Russia'. Agentive predicates in some phrases, e.g., *prizyvaet Norvegiju* 'calls on Norway', and *načala razvivat' Severnyj morskoj put'* 'began developing the Northern Sea Route', construct 'Russia' as an intentional, initiating actor. Weakly agentive predicates in some phrases, e.g., *budet reagirovat' predel'no rešitel'no* 'will react with extreme determination' and *ne priemlet užestočenie Norvegiej raboty rossijskix organizacij* 'does not accept Norway's tightening of regulations on

Russian organizations', position 'Russia' as a responsible participant or responder rather than a driver of events. The modal-lexical predicative in the phrase *možet denonsirovat' dogovor s Norvegiej* 'may denounce the treaty with Norway' presents 'Russia' as a potential or hypothetical agent, capable of initiating a political act, but without assigning actual agency. The majority of the verbs mentioned above are used in the context of dissatisfaction with Norway's policy towards Russian economic activities on Svalbard. In this context, 'Russia' is often portrayed as a constructive and responsible actor. In addition to this image, 'Russia' is also framed as an initiating actor who is subtly morally superior to the passive/reluctant Other (Norway). e.g.:

(1) MID RF: Rossija.NOM prizyvaet Norvegiju k dialogu po rešeniju problem so Špicbergenom [RG, 24.10.2022].
Russian Foreign Ministry: Russia.NOM calls on Norway to engage in dialogue to resolve issues related to Svalbard [RG, 24.10.2022].

In 2023, predicates associated with 'Russia' in the NAME meaning of Nominative case continue to vary in their agentivity. Some constructions, e.g., *imeet pravo na osvoenie resursov arxipelaga* 'has the right to develop the resources of the archipelago' and *zanimaet bolee poloviny mirovoj Arktiki* 'occupies more than half of the world's Arctic', are non-agentive or stative, portraying 'Russia' as a holder of rights or a geographical entity. Others, e.g., *planiruet zapustit' čarternye rejsy na arxipelag* 'plans to launch charter flights to the archipelago' and *vedet xozjajstvennuju dejatel'nost' na arxipelage* 'conducts economic activities on the archipelago', assign 'Russia' clear agentive roles, positioning it as an active and intentional actor in the Svalbard context.

The same line of representations continues in 2024 (through only one example) and 2025. The non-agentive constructions *imeet pravo na osvoenie resursov arxipelaga* 'has the right to develop the resources of the archipelago' (occurring both in 2024 and 2025) and *imeet na arxipelage dva poselka* 'has two settlements on the archipelago' portray 'Russia' as a responsible, legitimate, and serious economic actor in the Svalbard region. The phrase *vrjad li zakroet Barencburg* 'is unlikely to close Barentsburg'[5] with a mitigated agentivity reinforces the image of 'Russia' as a stable and pragmatic economic actor.

The other case in which 'Russia' occurs more frequently than expected is the Genitive (DIN* 14.754 in 2022, DIN* 8.197 in 2023, DIN* 27.200 in 2024, DIN* 9.901 in 2025) which indicates that 'Russia' is consistently described as a point of reference (Figure 1). In 2022, the absolute majority of examples relate to the WHOLE meaning of the Genitive case. 'Russia' often modifies the nouns denoting [diplomatic] relations: *MID* 'Ministry of Foreign Affairs', *posol'stvo* 'embassy', *genkonsul* 'consul general', and *genkonsul'stvo* 'consulate general', specifying ownership or association, e.g. 'Russia's

[5] This article employs the Scholarly transliteration system for all Russian text examples. However, standard English spelling is used for geographical names and the names of public figures in the main text and English translations.

embassy'. These phrases relate to the context of a dispute between Russian and Norwegian officials over the delivery of supplies to Russian settlements on Svalbard that emerged in June and was resolved in July 2022, e.g.:

(2) [...] posol′stvo Rossii.GEN v Norvegii obratilos′ k vlastjam s pros′boj garantirovat′ vvoz tovarov na ostrov Špicbergen. [RG, Norvegija ne propustila gruzy v rossijskie poselenija na Špicbergene, 28.06.2022].
[...] the Russian.GEN Embassy in Norway has asked authorities to guarantee the import of goods to Spitsbergen Island. [RG, Norway has denied cargo entry to Russian settlements on Svalbard, 28.06.2022].

In 2023, 'Russia' in the Genitive case continues to modify the nouns *konsul* 'consul' and *genkonsul'stvo* 'consulate general'. The context indicates that the Russian Consul General (*General'nyj konsul Rossii*.GEN) on Svalbard Andrei Chemerilo becomes the point of reference, revealing Russia's plans to "launch charter flights to the archipelago". He also states that there are no "reasons for revoking or revising the Svalbard Treaty"[6] and speaks about "working cooperation on all issues with the Governor of Svalbard" thus reinforcing the framing of 'Russia' as a cooperative and stable actor in the region.

In 2024 and 2025, 'Russia' in the Genitive case is combined with various nous relating to various topics. An example from 2024 is the phrase *Minobrnauki Rossii*.GEN 'Ministry of Education and Science of Russia', used in the context of a discussion about Russia's creation of a BRICS research centre on Svalbard. The phrase *ugolok Rossii*.GEN v NATO 'Russia's corner in NATO' from 2025 is a reference to Barentsburg, used by The Economist and quoted in a Russian-language text.

The examples of the WHOLE meaning of the Genitive case, especially from 2022–2024, demonstrate that 'Russia' is construed as the agent of actions performed, e.g., by the Embassy, Consulate General, and Ministry of Education and Science, through metonymic reference. That is, Russia is represented as actively operating on Svalbard via its diplomatic mission and government institution.

Another meaning of the Genitive case, which is rare but persistent, is SOURCE, expressed through the phrase *iz Rosii*.GEN 'from Russia'. If in 2022, 'Russia' is presented as a source of cargo prohibited from further transportation to Svalbard, then in 2023–2025, 'Russia' is a potential source of sea and air flights to the archipelago. The SOURCE meaning thus communicates the connection between Russia and Svalbard and contributes to a persistent directional relationship between them.

'Russia' appears in the Dative case only in 2022 (Figure 1). One of the examples of this prominent appearance relates to the dispute over the delivery of supplies to Russian settlements in 2022:

[6] The Svalbard Treaty of 1920 recognizes the sovereignty of Norway over Svalbard and gives equal rights to more than 40 countries, including Russia, to conduct economic activity there.

(3) My soglasilis′ s tem, čto Špicbergen formal′no otxodit norvežskoj storone, no pri ėtom Norvegija budet sobljudat′ dogovorennost′ o sovmestnom upravlenii ėtoj territoriej i ne budet prepjatstvovat′ Rossii.DAT, kotoraja namerevalas′ takže rabotat′ na Špicbergene. [RG, Ėkspert RISI Ermakov ob″jasnil, možet li Rossija denonsirovat′ dogovor s Norvegiej o morskix prostranstvax, 06.07.2022].
We agreed that Spitsbergen would formally be transferred to Norway, but Norway would abide by the agreement on joint management of this territory and would not interfere with Russia.DAT, which also intended to operate on Svalbard. [RG, RISI[7] expert Ermakov explained whether Russia could denounce the Maritime Treaty with Norway[8], 06.07.2022].

In example (3), 'Russia' is used in the EXPERIENCER meaning of the Dative case and is presented as a victim. 'Russia' is an "experiencer" of harassment from 'Norway', which violates or fails to fulfil its obligation not to "interfere with Russia" on Svalbard. This passive role, combined with the portrayal of 'Russia' as a proactive actor who "intended to operate on Svalbard", reinforces the narrative of it as an unfairly constrained actor entitled to consider legal measures, namely to "denounce the Maritime Treaty".

Another example of the Dative case from 2022 suggests a contrasting image of 'Russia'. In this clause, 'Russia' also has the EXPERIENCER meaning of the Dative case: *na Severnom morskom puti Rossii*.DAT *ne nužny inostrannye voennye korabli* 'Russia does not need foreign warships on the Northern Sea Route'. This construction presents 'Russia' as an entity with complete control over its Arctic territory, independently assessing and deciding what is and is not necessary within this sphere of control.

The use of 'Russia' in the Accusative case is noteworthy in two periods: in 2023, when it is quite close to the "norm" (DIN* -7.190), and in 2024, when it is overrepresented (DIN* 24.771) (Figure 1). The few examples of this case point to contexts other than political, and to which Svalbard is only partially connected. For example, in 2023, 'Russia' is described as a DESTINATION for the influence of the warm waters of the Gulf Stream (*teplyj vozdux perenositsja na Rossiju*.ACC 'warm air is moving towards Russia'). In 2024, 'Russia' is framed as a DESTINATION for foreign artists (e.g., *priletel v Rossiju*.ACC 'arrived in Russia') associated with a Russian artist who previously visited Svalbard.

The last case in which 'Russia' is prominently used is the Instrumental (DIN* 35.556 in 2022 and DIN* 10.769 in 2023) (Figure 1). The occurrences from 2022 contribute to the same narrative of victimization and a capability of initiating a political act earlier revealed through the use of the Dative case (example 3). These are the phrases *dogovor o razgraničenii morskix prostranstv s Rossiej*.INS 'Maritime Delimitation Treaty with

[7] RISI is the abbreviation for The Russian Institute for Strategic Studies.
[8] The Treaty Concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean signed by Norway and Russia in 2010.

Russia' (the ADJUNCT meaning of the Instrumental) and *dogovor meždu Rossiej*.INS *i Norvegiej* 'Treaty between Russia and Norway' (the LANDMARK meaning) representing 'Russia' as a participant in official international agreements. These phrases refer to the Maritime Delimitation Treaty signed between Russia and Norway in 2010, the possibility of denunciation of which is being discussed in this context.

The only occurrence of 'Russia' in the Instrumental case in 2023 is the phrase *otnošenija meždu Norvegiej i Rossiej*.INS 'relations between Norway and Russia' which "the media most often focuses on", despite the fact that "Svalbard is home to a multinational community". In this example, the relationship between Norway and Russia is highlighted as the central axis of local interaction, which contributes to the formation of the image of Russia as a state with a special status on Svalbard in comparison with other national groups.

The consistent underrepresentation of the Locative case (*v Rossii*.LOC 'in Russia') (Figure 1) indicates that 'Russia' is not the central geographic space of the texts. 'Russia' is framed as an active political, institutional, and economic actor rather than a physical location in the Svalbard context.

3.2 Norway

Figure 2 (a partial visualization of Table 3) indicates that 'Norway' is overrepresented in four cases: Genitive, Dative, Accusative, and Instrumental, although some of them display highly variable year-to-year usage. Since the noun sometimes appears close to the "norm" in the Nominative and Locative cases, I will consider them as well.

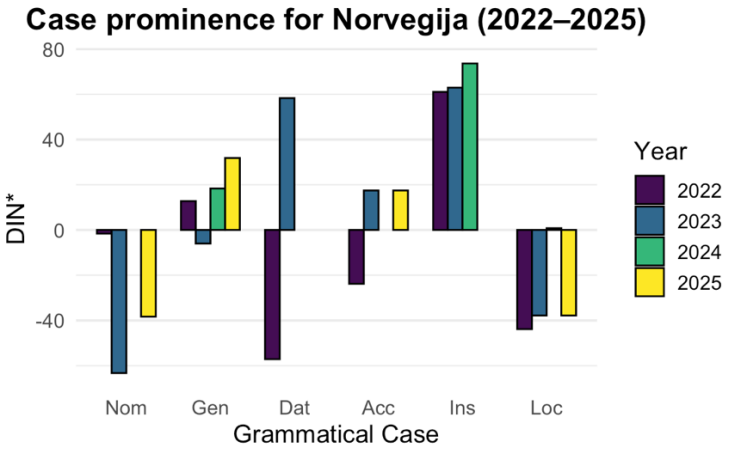


Figure 2. Visualization of prominence of grammatical case for 'Norway', given in DIN* values

'Norway' shows a predominantly negative trend in the use of the Nominative case. However, the noun usage in 2022 is close to the "norm" (DIN* -1.633) and occurs predominantly in phrases containing highly agentive verbs, e.g.: *ne propuskaet gruzy dlja rossijskix šaxterov* 'is refusing to allow cargo for Russian miners', *narušaet*

položenija parižskogo dogovora ‘is violating the provisions of the Paris Treaty’, *otklonila rossijskuju zajavku na propusk gruzov* ‘rejected Russia’s application for cargo transit’, *naraščivaet voennoe prisutstvie na Špicbergene* ‘is increasing its military presence on Svalbard’, *ograničila rossijskim rybooloveckim sudam dostup v porty* ‘restricted access to ports for Russian fishing vessels’, *proverjaet rossijskie gruzy* ‘is checking Russian cargo’. These phrases frame ‘Norway’ as a dominant, sovereign, and regulating authority on Svalbard, exercising power over ‘Russia’. Such representations often appear in the context of the dispute over the supply of goods to Russian settlements.

The use of ‘Norway’ in the Genitive case varies from being near the “norm” (DIN* - 5.995 in 2023) to being overrepresented (DIN* 12.769 in 2022, DIN* 18.343 in 2024, DIN* 31.818 in 2025) (Figure 2). ‘Norway’ is used predominantly in the WHOLE meaning in all years. The context reveals a certain pattern – ‘Norway’ consistently modifies the nouns denoting government institutions, diplomatic actors and political authorities, except for 2024. These noun phrases are often combined with highly agentive predicate constructions such as *otklonili zapros* ‘rejected the request’, *naraščivajut voennoe prisutstvie* ‘increase military presence’, *načali otgovarivat'* ‘began to dissuade’, *predprinimajut dejstvija* ‘take action’. Thus, ‘Norway’ is assigned the role of an active initiator of deliberate and impactful actions through its institutions and political actors. Example (4) illustrates this representation by the phrase *vlasti Norvegii*.GEN ‘Norwegian authorities’ and the verb *užestočili* ‘tightened’ in the context of overall dissatisfaction with Norway’s policy towards Russia expressed in 2022:

(4) [...] vlasti Norvegii.GEN v poslednee vremja suščestvenno užestočili uslovija raboty rossijskix organizacij na arxipelage Špicbergen i v ego vodax. [RG, MID RF: Rossija ne priemlet užestočenie Norvegiej raboty rossijskix organizacij na Špicbergene, 29.12.2022).
[...] Norwegian.GEN authorities have recently significantly tightened the conditions for Russian organizations to operate on the Svalbard archipelago and in its waters. [RG, Russian Foreign Ministry: Russia does not accept Norway’s tightening of the rules for Russian organizations on Svalbard, 29.12.2022).

MID ‘Ministry of Foreign Affairs’ appears several times among the nouns modified by ‘Norway’ in 2023. This noun is used in the context of the opening of charter flights from Russia to Svalbard, which *MID Norvegii*.GEN “agreed to resume”. The same line of presenting ‘Norway’ as a powerful, agentive, and even interventionist actor continues in 2025. It is demonstrated by the phrase *vlasti Norvegii*.GEN ‘Norwegian authorities’ and the predicates in the phrases “began to dissuade tourists from visiting a Russian village [Barentsburg]” and “are taking steps to strengthen their sovereignty over Svalbard”.

The other group of nouns modified by ‘Norway’ in the Genitive case in 2023 contributes to the formation of new representations. These are the deverbal nouns *dobavlenie* ‘addition’, *vključenie* ‘inclusion’, and *vnesenie* ‘insertion, placing into’, e.g.:

(5) […] Vključenie Norvegii.GEN [Rossijej] v spisok nedružestvennyx stran ne otrazilos′ na genkonsul′stve [Rossii v Barencburge] [RG, 23.08.2023].
[…] The inclusion of Norway.GEN in the list of unfriendly states [by Russia][9] did not affect the [Russian] Consulate General [in Barentsburg] [RG, 23.08.2023].

In example (5), 'Norway' modifies the head noun *vključenie* 'inclusion' and is used as a Genitive of Patient. This construction thus represents 'Norway' not as an agent but as an object of Russian bureaucratic action. This contrasts sharply with the pattern revealed earlier where Norway is an active and agentive regulator and policymaker.

The use of 'Norway' in the Genitive case in 2024 is represented by only two examples. In one of them Svalbard is mentioned as *raspoložen na granice Rossii i Norvegii*.GEN 'located on the border between Russia and Norway', which is a factual inaccuracy creating an image of the archipelago as a space equally related to both Russia and Norway.[10] In the other example, it is stated that the Svalbard land *prinadležit gosudarstvennym kompanijam Norvegii*.GEN *i Rossii* 'belongs to state-owned companies in Norway and Russia' without explaining the nuances. This formulation leads to a misleading representation of 'Norway' and 'Russia' as equal landowners on the archipelago.[11]

The overrepresentation of 'Norway' in the Dative case relates to only 2023 (DIN* 58.294) (Figure 2). The context demonstrates a temporary focus on Norway's legal and formal authority over Svalbard. 'Norway' is mentioned as a RECEIVER of sovereignty over Svalbard according to the Svalbard Treaty of 1920 (*dokument 1920 goda predostavil Norvegii*.DAT *suverenitet nad arxipelagom* 'the 1920 document granted Norway sovereignty over the archipelago'). 'Norway' is also used in the EXPERIENCER/possessor meaning of the Dative case in the phrase *arxipelag, podkontrol'nyj Norvegii*.DAT 'the archipelago controlled by Norway'. This phrases frames 'Norway' as the entity to whom the state of control is attributed.

'Norway' is overrepresented in the Accusative case in 2023 (DIN* 17.460) and in 2025 (DIN* 17.460) (Figure 2). Two examples from 2023 show that the noun is used in the metaphorical version of the DESTINATION meaning of the Accusative case representing 'Norway' as a direct object. One of the texts mentions the list of unfriendly countries created by the Russian government in which 'Norway was added' (*vključili Norvegiju*.ACC). The other text outlines Russia's official position on the Svalbard Treaty of 1920. The Treaty is referred to as a document that is and will be the basis for relations between Russia and Norway on Svalbard *pri uslovii vypolnenija ego položenij vsemi storonami dogovora, vključaja Norvegiju*.ACC 'provided all parties to the treaty,

[9] Norway was added to Russia's list of "unfriendly countries" in August 2023 in response to Norway's expulsion of 15 Russian diplomats several months earlier (https://www.themoscowtimes.com/2023/08/03/moscow-adds-norway-to-list-of-unfriendly-states-a82043).
[10] The article containing the cited example does not mention Norwegian sovereignty over Svalbard.
[11] The Norwegian state is the largest landowner on Svalbard, owning 99.5% of the archipelago. Russia owns 0.4% (https://snl.no/Eiendommer_og_grunneiere_på_Svalbard). Norway holds sovereignty over Svalbard, while Russia has treaty-based rights to economic activities and settlements.

including Norway, comply with its provisions'. Thus, in these examples 'Norway' is framed as an object of restrictions, classification, and obligations operated under the agency of Russian government actors.

The only example of 'Norway' in the Accusative case from 2025 also promotes the presentation of Norway as a passive entity through the DIMENSION meaning of the Accusative case. In this example, it is stated that *perelet čerez Norvegiju*.ACC 'flying via Norway' is the only way for Russian tourists to reach Svalbard. Thus, 'Norway', or more precisely, mainland Norway, to avoid factual inaccuracy, is represented simply as a territory and a gateway to Svalbard.

The Instrumental case is the only case in which 'Norway' is consistently extremely overrepresented (DIN* 61.026 in 2022, DIN* 62.927 in 2023, DIN* 73.611 in 2024) except for 2025 when 'Norway' in the Instrumental case does not occur (Figure 2). In 2022, 'Norway' is often used in the MEANS meaning of the Instrumental case as a part of nominalised clauses containing deverbal nouns *narušenie Norvegiej*.INS *svoix meždunarodnyx objazatel'stv* 'Norway's violation of its international obligations', *blokirovka Norvegiej*.INS *postavok prodovol'stvija rossijanam* 'Norway's blocking of food supplies to Russians', and *užestočenie Norvegiej*.INS *raboty rossijskix organizacij na Špicbergene* 'Norway's tightening of restrictions on the work of Russian organizations on Svalbard'. These constructions foreground 'Norway's' agency and frame it as a norm-breaking or restrictive actor.

'Norway' is also often used in the ADJUNCT meaning of the Instrumental case in 2022. The *phrases otnošenija s Norvegiej* 'relations with Norway', *sotrudničestvo s Norvegiej* 'cooperation with Norway', and *dogovor s Norvegiej* 'agreement with Norway' represent 'Norway' as an accessory participant in certain processes. These phrases are used in the context of the dispute over the supply of goods to Russian settlements, which sparked discussions about the status of the 2010 Maritime Delimitation Treaty between Russia and Norway. It is argued in the texts that the Treaty has failed to meet expectations for cooperation between the countries and should be denounced. Thus, this context demonstrates a shift in the discursive role of 'Norway' from a partner to an adversary that hinders effective cooperation in the region.

In 2023, the only two phrases with 'Norway' in the Instrumental case (the LANDMARK and ADJUNCT meanings) assign a more positive, partner-like role to 'Norway'. It is stated that *sotrudničestvo meždu Rossiej i Norvegiej*.INS *prodolžaetsja* 'cooperation between Russia and Norway continues' and that the 1920 Svalbard Treaty *javljaetsja kraeugol'nym kamnem našix [rossijskix] otnošenij s Norvegiej*.INS 'is the cornerstone of our [Russia's] relations with Norway' on Svalbard. These sentences thus position 'Norway' as a counterpart involved together with Russia in cooperation, relations, and treaty-based obligations, rather than as a unilateral or restrictive actor.

The single occurrence of 'Norway' in the Instrumental case in 2024 points to the LANDMARK meaning. The texts refer to a land parcel on Svalbard put up for sale. This

land parcel is described as located *na polputi meždu Norvegiej*.INS *i Severnym poljusom* ‘halfway between Norway and the North Pole’. This phrase positions ‘Norway’ as a geographic reference point, helping to spatially define Svalbard’s position in the Arctic space. Alternatively, this example could be interpreted as a factual inaccuracy that contributes to the construction of Norway as a territory legally unrelated to Svalbard.

The tendency toward extreme underrepresentation of ‘Norway’ in the Locative case (Figure 2) indicates that ‘Norway’ is not framed as a central geographic space in the context of Svalbard. This underrepresentation can also be interpreted as an avoidance of locative references (e.g., that Svalbard is ‘in Norway’) which contributes to the perception of Svalbard as a non-Norwegian territory. However, the appearance of ‘Norway’ in the Locative case within the “norm” in 2024 (DIN* 0.806) is an exception to this general trend. The only example of the Locative case in 2024 is the title of an article reporting on an incident on Svalbard. In the title, the archipelago is directly referred to as a Norwegian territory using the Locative case:

(6) V Norvegii.LOC oštrafovali zabravšegosja na l′dinu k moržu turista [RG, 28.04.2024].
A tourist in Norway.LOC was fined for climbing onto an ice floe to see a walrus [RG, 28.04.2024].

4. Discussion and conclusion

The aim of this study was to examine how the Russian mainstream newspaper *Rossijskaja Gazeta* constructed the Arctic actors, Russia and Norway, in the context of Svalbard during 2022–2025. The study utilised Keymorph Analysis, embedded into CADS and Cognitive Linguistics, to investigate representations of Russia and Norway through the prominence of grammatical cases used with the nouns *Rossija* ‘Russia’ and *Norvegija* ‘Norway’ and the immediate context of these word forms.

The results of the analysis indicate that both Norway and Russia are often assigned discursive roles as intentional and proactive actors operating within the framework determined by their legal status in the region: Norway is the sovereign and regulatory authority, while Russia is the legitimate responsible actor conducting stable economic activity on the archipelago. Across this discourse, Russia and Norway are often construed as oppositional forces. Norway functions as a strong, often negative, active force that initiates changes, that “tightens”, “restricts”, “rejects”, “checks”, “gives consent” and thus determines outcomes while Russia is a weaker reacting force blocked by Norwegian action but attempting to act, for example, by calling for dialogue. This opposition is particularly relevant to the dispute over the delivery of supplies to Russian settlements in 2022. The discourse around Russia is presented as defensive: Russia is a moralist and a norm defender, capable of initiating measures within its own powers hypothetically (to denounce the 2010 Maritime Treaty with Norway in 2022) or of

conducting political acts factually (including Norway into the list of "unfriendly" countries in 2023).

Russia's connection to Svalbard is an integral part of the country's media image. For example, direct transport links in the form of cargo or planned air and sea shipments from Russia to Svalbard are regularly mentioned. At the same time, especially after 2022, Norway's sovereignty over Svalbard is somewhat deemphasized in some texts (while some others explicitly mention it) – the archipelago is presented as a territory alienated from Norway (for example, a description of journey to Svalbard from Russia "via Norway" from 2025), or as a territory in which Norway and Russia are equal landowners (a reference from 2024). Such representations are often founded on factual inaccuracies. It is difficult to determine, however, whether these inaccuracies are the result of journalistic simplification, limited knowledge of Svalbard's legal status, editorial time constraints, or a general rhetorical tendency to portray Svalbard in a joint association with Russia and Norway, as if the archipelago belongs to both states in parallel.

The results of this study are largely consistent with those of a previous study of Svalbard coverage in Russian media from 2010 to 2021 using Keymorph Analysis (Obukhova 2024: 211–212). During that period, Russia and Norway were also presented as dynamic actors operating on Svalbard. The discourse of that time paid attention to the international nature of the 1920 Svalbard Treaty and, at the same time, to Norway's sovereignty over the archipelago. Norway was consistently portrayed as a party that infringes on Russia's rights to an economic presence in the region. In this sense, it can be argued that the general trends in the representation of Russia and Norway on Svalbard before and after 2021 are similar. An interesting detail discovered in this study is a certain tendency to blur focus on Norway's sovereignty, created by factual inaccuracies. Taking this detail into account, as well as the context of Svalbard as a whole, it is appropriate to continue studying Russian media discourse while also incorporating an analysis of Norwegian media coverage of the archipelago.

Appendix A. The distribution of the grammatical cases of the nouns *Rossija* and *Norvegija* (raw frequencies)

Case	2022		2023		2024		2025	
	Rossija	*Norvegija*	*Rossija*	*Norvegija*	*Rossija*	*Norvegija*	*Rossija*	*Norvegija*
Nom	12	20	10	1	2	N/A	5	1
Gen	24	37	12	7	14	2	8	6
Dat	3	1	N/A	3	N/A	N/A	N/A	N/A
Acc	2	4	2	2	3	N/A	1	1
Ins	3	13	1	3	N/A	1	N/A	N/A
Loc	5	8	3	2	3	1	4	1
Overall	49	83	28	18	22	4	18	9

Appendix B. The distribution of the grammatical cases of the nouns *Rossija* and *Norvegija* in the main corpus of RNC in 2010-2021 (raw frequencies)

Russian National Corpus (Main corpus, years 2010–2021; 25,048,968 words)		
Case	*Rossija*	*Norvegija*
Nom	2,970	73
Gen	7,527	101
Dat	896	13
Acc	1,696	23
Ins	605	11
Loc	6,968	72
Overall	20,662	293

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Peer-reviewed article

How OER webapps came to be the way they are (and how to fix them!): a developer's guide to the SUSTAIN model

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Abstract

Many Open Educational Resource (OER) web applications have suffered from limited longevity and impact, even when teachers and students are receptive. A major cause is hiding in the subtle decisions about which technologies are used to build the apps. This "publish, then perish" trend is a direct result of the fact that OER developers are not always professional web developers, and are susceptible to following industry trends that do not align with educational and scholarly goals. I discuss factors that contribute to this tendency, and propose an alternative deployment model to extend the impact of educational applications: the SUSTAIN model. Using the example of the now-defunct VIEW browser extension, I highlight struggles that have complicated deployment and maintenance. I then present a consolidation and re-write of two webapps (VIEW and RuMOR) into a single new browser extension, the Russian Language ToolKit (RLTK). The new build prioritizes long-term viability by compiling underlying tools to WebAssembly and porting all language processing functionality from the previous implementations' back-end servers to the browser's javascript runtime. By isolating all technology to a static webapp, most potential sources of deployment failure are completely avoided. Finally, I discuss possibilities and limitations of this approach that can help researchers determine whether it is appropriate for their work.

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1. Introduction

Despite decades of promising research, the long-term impact of many Open Educational Resource (OER) web applications has been limited. Friesen (2009) observes that OER projects often face a "sustainability crunch," where initiatives falter once initial funding is exhausted. Sancho-Gil et al. (2020) characterize this as the "predictable failure" of Ed-Tech initiatives, and Mishra (2017) notes that barriers to OER adoption often come from within the movement itself. A key technical reason for this limited impact is that the technology stacks (i.e., the combination of programming languages, frameworks, and services used to build an application) chosen for these projects are often brittle—prone to breaking when any single component changes. As a result, an OER prototype described in a conference paper is often no longer accessible only a few years later. Ahlf et al. (2024) analyze this ephemerality and propose the TRS (Time, Resources, Sustainability) model, which emphasizes forward-thinking planning to prevent obsolescence.

In this article, I identify specific factors that make an OER technology stack brittle. I then propose the SUSTAIN model, a set of design principles aimed at improving the effective longevity of OER webapps. Finally, I illustrate these principles in action by describing how two webapps—1) *VIEW*, a Russian reading assistant (Reynolds et al. 2014), and 2) *RuMOR*, a Russian morphology/orthography tutor (Reynolds et al. 2022)—were consolidated and redesigned into a single new browser extension, the Russian Language ToolKit (RLTK). My goal is to provide concrete guidance for the OER community to build tools that not only showcase pedagogical innovations, but also remain usable and impactful for many years.

2. Related work

The problem of longevity and project maintenance has been the topic of ongoing discussion. Volodina et al. (2012) observed that very few educational web applications were actively maintained or reused, despite the availability of accurate Natural Language Processing (NLP) tools that could benefit language learning. They proposed a "Service Oriented Architecture" (SOA), but such approaches drastically complicate deployment and reliability, since the failure of any one service can break the entire app. Similarly, Amaral et al. (2011) discuss how even technically successful educational prototypes often fail to integrate into real-world teaching, partly because the effort to keep them running is too great given their brittle underpinnings. While the TRS model of Ahlf et al. (2024) provides a holistic framework encompassing both technical and organizational dimensions, the present work focuses specifically on technical design principles for web application longevity.

3. Factors Limiting OER Webapp Longevity

3.1 Complex, Multi-Component Architectures

OER web applications often combine multiple advanced technologies to analyze and respond to learner input. Using language-learning apps as an example, a typical architecture might include a web frontend, a backend server with one or more NLP libraries (for tokenization, parsing, error detection, etc.), a database for student models or logging, and possibly additional servers or native programs for specialized tasks. While each component brings useful capabilities, the overall system becomes complex and fragile. The use of different programming languages and frameworks can complicate maintenance. This challenge is not unique to OER; Lercher et al. (2023) highlight similar issues in microservice architectures, where the evolution of Application Programming Interfaces (APIs) and communication between loosely coupled services creates significant integration and maintenance overhead.

3.2 Dependence on Native Binaries and External Servers

Many OER projects leverage existing NLP tools developed outside the language-learning domain. For example, many applications rely on popular NLP frameworks, such as CoreNLP (Manning et al. 2014), stanza (Qi et al. 2020), spacy (Honnibal et al. 2020), nltk (Bird et al. 2009), huggingface (Wolf et al. 2020), and others. Likewise, many rule-based systems rely on finite-state morphological analyzers (e.g., HFST[1] or Foma[2]) and constraint grammars (VISL CG-3[3]) to provide detailed linguistic analysis for learner input in systems for morphologically rich languages (e.g., Antonsen 2013; Wiechetek et al. 2022). These tools are often written in low-level languages (C/C++) and distributed as native binaries or source code. As such, the most natural implementation for them is on a back-end server.

Reliance on a remote server or service is inherently fragile. The end-of-life of Adobe Flash in 2020, which rendered numerous educational applications unusable overnight, starkly illustrates the risk of depending on proprietary runtimes. Using remote servers to host NLP components pushes the maintenance burden onto the project team: running servers incurs ongoing costs and requires security updates. Research projects often cannot keep servers running indefinitely after funding ends or developers graduate. When the

[1] Helsinki Finite-State Tools; https://hfst.github.io/
[2] (Hulden 2009); https://fomafst.github.io/
[3] (Bick and Didriksen 2015); https://edu.visl.dk/constraint_grammar.html

server goes offline, the OER tool becomes inaccessible. Remote servers also introduce latency and dependency on internet connectivity, which can hinder classroom adoption.

4. The SUSTAIN model

To address the above challenges, I propose a new model for developing OER web applications that is optimized for long-term viability. This model encourages applications that are Simple, User-less, Static, Transferable, Accessible, Independent, and web-Native (SUSTAIN). As an optimized model, the SUSTAIN model may not fit all applications, but it can still serve as frame of reference to evaluate whether a given OER webapp's features justify the reduced sustainability those features entail. Adhering to these principles can greatly increase a tool's lifespan and ease of maintenance, thus amplifying its impact.

4.1 Keep it simple

Keep the app's features and user interface as simple as possible. Each additional feature adds complexity, which increases the chances of bugs and maintenance burdens. Determine the core functionality that delivers the most educational value, and focus on that.

Keep the app's architecture as simple as possible by limiting the number of technologies used. Each additional technology, framework, or service in your stack is another thing that can break or become obsolete. By limiting the number of distinct components, you reduce integration bugs and the effort required to update the system. In practical terms, this might mean using a single general-purpose programming environment to handle most of the application's logic. For instance, a modern web application can be written entirely in JavaScript, leveraging libraries within that ecosystem, instead of split across a Java backend, a JavaScript frontend, a Python server, etc.

If an app can be implemented with just "vanilla" web technologies (HTML/CSS/JS/WASM) in the client browser, that eliminates the need for any specialized server or installation. A simpler stack also eases the onboarding of new developers or contributors. Open-source OER projects (as discussed in 4.7) benefit when others can readily understand how to run and modify the system. A simpler architecture lowers the so-called "bus factor" (i.e., the risk that only one person knows how it works). Given that research software often changes hands or is inherited by new students, simplicity can make the difference between a project that dies with the original developer and one that others can pick up and carry forward.

Finally, simplicity aids portability (cf. 4.4). The fewer external requirements, the more easily a system can be deployed in new contexts (different institutions, different devices,

etc.). This increases the chances of surviving beyond the initial use case and being reused or repurposed, thereby extending its life.

4.2 Store user data on client

The storage of user data on a remote server has profound implications for maintenance and compliance. Vázquez-Cano et al. (2023) emphasize "safety and ethics in data protection" as a key factor in digital sustainability for learning apps. If your OER system collects and stores personal user information, you inherit responsibilities for data privacy, security, and regulatory compliance (such as GDPR in Europe, or COPPA for minors in the US). Indeed, Otto (2019) found that legal concerns are a significant barrier to OER adoption in educational institutions. These obligations can become a burden that outlives the initial research project. For example, an OER platform that requires student accounts and stores progress data on a server must ensure that data is kept secure and private. Over time, managing user accounts can require updates for security (e.g., password hashing algorithms) and policy changes (privacy laws or platform policies). If those are neglected, the system may have to be shut down to avoid risks of data breaches or policy violations.

By keeping all processing local and not storing user data centrally, one can avoid such policy pitfalls entirely. Minimizing stored data also makes an OER tool easier to hand off or shut down cleanly. If no personal data is stored on a server, there is no liability or ethical issue if the server is discontinued; you can simply open-source the code and let others run it without worrying about migrating user databases. Many app components that traditionally use a central database–such as learner models for adaptive content–do not actually require a central database. This user data can be stored on the client, e.g. using HTML5's `localStorage` or `sessionStorage`. Besides the benefits for privacy and compliance, this often simplifies the app's architecture (c.f. 4.1).

If tracking user progress is part of a broader research objective, it is still advantageous to use local storage first, and then sync that data with a remote server when possible. This allows for capturing data while the user is not connected to the internet, and makes it trivial to remove data collection functions from the app without affecting general functionality.

4.3 Static webapp deployment

A static web application is one that consists solely of static files (HTML, CSS, JavaScript, WebAssembly) that can be served by any standard web server without the need for server-side processing or databases. On the other hand, dynamic web applications rely on server-side code (e.g., PHP, Node.js, Python) to customize the content of each page. Note that

static webapps can still include complex client-side logic, including interactivity and adapative behavior. The important distinction is that all such processing happens in the user's browser, rather than on a remote server.

Static webapps are inherently simpler to deploy and maintain, since they do not require a running backend server or database. Many hosting providers offer free or low-cost static web hosting, making it possible to provide access to the app with literally no ongoing costs.

4.4 Reusability and Transferability

Design the app to be easily reusable and extensible by others. This includes clear documentation, modular code structure, an open-source license, and publication in a public repository.

One of the best ways to ensure that the underlying logic of an OER webapp is reusable is to build two apps at the same time, sharing underlying classes and other components. For example, you might build a static webapp, a desktop app (using Electron or a similar framework), and/or a browser extension that all share the same core codebase. This forces you to write modular, well-documented code that can be adapted to different contexts.

Publishing the source code of OER web applications in an open repository (e.g. GitHub or GitLab) is crucial for longevity and impact (Duan and Lee 2022). Open-sourcing allows other developers and researchers to inspect how the system works, reuse components, and update parts as needed to keep it running. It also guards against the tool disappearing entirely when the original authors move on. Even if a live demo goes down, the code remains available for someone else to deploy or extend.

If your project has dependencies or deployment considerations, clearly document them; better yet, create a `Dockerfile` or `compose.yaml` to effortlessly deploy the app in a container. Consider including a copy of the container's base image in your codebase in case the image is removed from container repositories in the future.

Making OER code open-source and placing it in a well-known public repository (with documentation and an appropriate license) significantly increases the chances that the software remains usable and useful in the long term. It invites collaborative maintenance and signals to the community that building on it is welcome, which can lead to the software being adopted in unexpected new contexts rather than fading away.

4.5 Accessibility

Ensure that the app is accessible to users with diverse needs and abilities. Vázquez-Cano et al. (2023) identify accessibility as a core pillar of digital sustainability, ensuring that tools

remain usable by all students. Many governments and institutions have legal requirements for digital accessibility (e.g., the Americans with Disabilities Act in the US, or the Web Content Accessibility Guidelines internationally), and a failure to comply can result in legal liability or exclusion of users.

Designing for accessibility from the start ensures that the app remains legally compliant as standards evolve. Use semantic HTML elements, provide alt text for images, ensure keyboard navigability, and test with screen readers.[4] Using standard web technologies, as discussed in 4.7 below, helps ensure compatibility with assistive technologies. Avoid Javascript frameworks, such as React, that dynamically manipulate the Document Object Model (DOM) in ways that break core accessibility features.

4.6 Independence

Although many OER researchers have followed industry trends and advocated for a service-oriented approach to building educational applications (e.g., Volodina et al. 2012), experience has shown that such architectures dependent on multiple APIs are brittle and difficult to maintain over time. As noted by Lercher et al. (2023), relying on external APIs introduces risks related to breaking changes and the need for constant communication between service providers and consumers—a luxury often unavailable in loosely funded OER projects. Similarly, Assunção et al. (2023) found that technical changes drive the evolution of microservices more than the actual business logic, and even when focused on business logic, "isolated microservices are an illusion.". For this reason, the SUSTAIN model discourages the use of external APIs altogether, whenever possible.

Similarly, each external library dependency is a potential point of future failure. If dependencies are necessary, vendor them (i.e., include a copy of the source code directly in your project) to avoid relying on package managers or content delivery networks (CDNs) that may disappear. The longevity of any software is tied to the longevity of its dependencies. When possible, eliminate dependencies and frameworks altogether. When necessary, lean towards well-established, widely adopted open-source dependencies over niche or cutting-edge solutions.

4.6.1 Artificial Intelligence APIs

Especially in the age of large language models (LLMs) and generative AI, it may be tempting to rely on third-party AI APIs (e.g., OpenAI, Cohere, HuggingFace) to handle some of the heavy lifting for NLP tasks. While these services can provide an easy proof-

[4] https://developer.mozilla.org/en-US/docs/Learn_web_development/Core/Accessibility

of-concept, they introduce significant long-term risks. API providers will change pricing models, rate limits, or even discontinue services, which can render your OER tool unusable.

When possible, avoid relying on external APIs. Instead, consider using open-source models that can be run locally (see 4.7). If an external API is necessary, design the app with fallback functions for when the API is unavailable or changes.

4.7 Web-native technologies

Choose technologies and frameworks that have a strong commitment to backward compatibility and long-term support. Web standards (e.g. HTML, CSS, JavaScript, and WebAssembly) are the consummate example of this. Not only are these technologies mature, stable and powerful; they are governed by organizations[5] that are dedicated to openness, accessibility, and backward compatability. These groups are committed to the mantra "don't break the web!", and by using only those technologies, you are virtually guaranteed future-proof, maintenance-free operation. A simple JavaScript web page from 1998 will likely still work today. In contrast, a browser plugin using non-standard or proprietary technology, such as a Java applet, a Flash app, or a Silverlight app from that time would not, since those plugins have been discontinued.

4.7.1 WebAssembly and Natural Language Processing (NLP)

Many OERs rely on compute-heavy models, such as Natural Language Processing (NLP) and machine learning. A static webapp may seem like a strange environment to deploy such applications, since most major machine-learning frameworks are written in C/C++/Java/Python. However, aside from Java, the rise of WebAssembly (WASM) has made it possible to run many tools and libraries in the browser. The compiled WebAssembly binaries operate on the client's machine at speeds comparable to native execution.

Python is currently one of the most popular programming languages for NLP research and the Pyodide project provides a WebAssembly build of the Python interpreter along with many packages commonly used for NLP, such as `nltk` and `scikit-learn` (team 2021). In addition, Pyodide makes all pure-python libraries simple to use in the browser.[6]

[5] https://www.w3.org/; https://whatwg.org/; https://ecma-international.org/technical-committees/tc39/

[6] Unfortunately, two popular Python NLP libraries – `spacy` and `stanza` – are not yet officially published for WebAssembly, but work is underway to change that.

Although Python's popular deep learning libraries are not yet supported in WebAssembly, there are JavaScript alternatives for running trained models directly in the browser, provided the model is not too large for users' local devices.

Many popular NLP tools are written in C or C++. Emscripten[7] makes it possible to compile such tools to WebAssembly, sometimes with little to no change to the source code. The resulting WebAssembly build can then be called directly from Javascript in the browser, without the need for a back-end server.

Although the SUSTAIN model is not usually the most natural way to write an educational app or resource, the inconvenience is far outweighed by the simplicity of deployment and the near future-proof result. There is good reason to believe that as long as an HTTP server can deliver the files of your app to a client, it will work.

5 Case Studies

5.1 Case Study 1: Redesigning VIEW's Russian module into RLTK

As a proof of concept, I present the redesign of the Russian module of VIEW, an OER web application for Russian. VIEW (Visual Input Enhancement for the Web) is a browser extension that enables learners to get on-the-fly language exercises from any webpage they visit (Amaral et al. 2006; Metcalf and Meurers 2006; Dimitrov 2008, 2018; Meurers et al. 2010; Reynolds et al. 2014). It is a multilingual successor to the WERTi system, extending the concept of automatic text enhancement to languages beyond English. The webapp has seen three incarnations (WERTi -> VIEW -> VIEW 2.0) and unfortunately all three suffered from a brittle tech stack that eventually rendered it an inoperable maintenance liability. This prompted a complete overhaul guided by the principles above.

5.1.1 The demise of VIEW 2.0

The report on VIEW 2.0 (Dimitrov 2018) clearly describes the technical shortcomings of the two preceding versions, so I will not mention those here. The latest version of VIEW also followed the following client-server model: the webapp would send the text of the current webpage to a remote server, which ran a pipeline of NLP tools. This pipeline included a morphological analyzer (for tokenization and lemmatization, using HFST-based transducers for Russian), a constraint grammar module (VISL CG-3 rules to disambiguate morphosyntactic tags and detect certain grammatical forms), and a set of exercise

[7] https://emscripten.org/

templates. The server would return the annotated text and exercise data to the extension, which would then overlay highlights or interactive exercises onto the webpage for the user.

As shown in Figure 1 (left), the backend server was implemented in a Java tomcat server along with a number of C++ executables (HFST and VISL-CG3 binaries), and required a running PostgreSQL database for user authentication and interaction logging. The extension itself was written in JavaScript. For a time, the system worked and was even deployed in a small user study. However, two developments quickly undermined this architecture.

The first issue was maintenance: the remote server and its NLP components required occasional upkeep that was displaced by more pressing teaching and research goals. Javascript dependencies were sometimes deprecated, or had breaking changes because of security vulnerabilities. Occasionally, the backend server was left in a state of dysfunction, breaking the extension for all users.

The second issue arose when the Chrome Web Store introduced stricter privacy policies. Because the extension was transmitting the content of any webpage a user visited to our server, it was pulled from the store. Chrome began requiring extensions to limit data collection or provide justifications, and in some cases disallowed the kind of broad access VIEW required. Complying would require a significant refactor to remove data tracking or undergoing complex audits and adding privacy disclosures that might deter users.



Figure 1: Architecture comparison showing the evolution from VIEW's Russian module to RLTK. Parallel components share colors across both diagrams (e.g., green for NLP tools). Left: the original client-server design required a Java application server, the UIMA framework, C++ NLP binaries, and a PostgreSQL database. Right: the RLTK architecture compiles all NLP tools to WebAssembly and runs entirely in the browser, satisfying all SUSTAIN principles

5.1.2 Static JavaScript + WebAssembly Redesign

Learning from that experience, I undertook a redesign of VIEW as part of a new consolidated browser extension, the Russian Language ToolKit (RLTK),[8] with the goal of eliminating the backend entirely and simplifying the technology stack as described above. The new approach was to use a purely client-side application, delivered either as a browser extension or a static web page that users can load locally. This meant reimplementing all necessary NLP processing in the browser environment.

I successfully compiled HFST and its dependencies – `foma`, `OpenFST`, and `ICU`[9] – as well as `VISL CG-3` to WebAssembly modules. Because I needed javascript to interact directly with HFST, it was necessary to write emscripten bindings for two HFST classes, but all the

[8] https://github.com/reynoldsnlp/rltk
[9] ICU is a library for handling unicode. It comes with a fairly large data library that I filtered for only those datasets used by HFST.

other dependencies compiled without significant changes. This means that the full pipeline of analyzing text (tokenizing, tagging, disambiguating) can execute within the user's browser, securely and efficiently, without a server connection.

With these components in WASM, the new stack is drastically simpler. RLTK is essentially a JavaScript application that loads the WASM modules and applies them to page content. All code runs in one environment (the browser) and is written in one primary language (JavaScript, with WebAssembly as a complement). There is no need for a separate database, as we avoid storing data altogether. Thus, it inherently complies with Chrome's privacy requirements and does not even need to ask for extensive permissions (beyond reading the page content locally).

RLTK exemplifies the principles of the SUSTAIN model:

- **Simple:** I removed entire layers of complexity (no separate web server, database, or external NLP service). Everything is packaged together in a single client-side application.
- **User-less:** The new webapp does not maintain any user accounts or logs. All user interaction (like which words were clicked or which answers were given) stays in the user's session. This dramatically reduces legal and maintenance burdens.
- **Static:** The application consists entirely of static files. Deployment is as easy as opening an HTML file or installing the extension; no backend configuration is required.
- **Transferable:** The entire RLTK codebase, including NLP components compiled to WASM, is hosted in a public repository under an open-source license. Because it is static, anyone can clone the repository and get the system running by simply opening the index page.
- **Accessible:** By relying on standard web technologies rather than proprietary plugins, the application is more compatible with assistive tools.
- **Independent:** The system no longer relies on external APIs or services that might be discontinued. It is self-contained.
- **web-Native:** By using standard WebAssembly and JavaScript, I rely on web platform stability. Browsers are very likely to support this code for the foreseeable future without breaking it.

An added benefit is performance and scalability. Since each learner's computer performs its own analysis, the system scales with the number of users without any server cost—and even works offline.

This client-side paradigm is not limited to rule-based NLP. Recent developments have shown that even large neural network models can be run in-browser via WebAssembly or WebGPU. Libraries like `transformers.js`[10] allow state-of-the-art models (for machine

[10] https://huggingface.co/docs/transformers.js/en/index

translation, grammar correction, etc.) to be executed entirely in the browser with no server. This means that future OER web applications could incorporate advanced NLP in a way that is still consistent with the SUSTAIN model.

5.2 Case Study 2: Consolidating RuMOR into RLTK

RuMOR (Reynolds et al. 2022) is an OER web application that helps learners of Russian improve their writing. When a learner submits text, RuMOR identifies morphological and orthographic errors—such as incorrect case endings or misspelled words—and provides corrective feedback with grammatical explanations.

The original version ran on a Python server that invoked the same NLP tools used by VIEW: HFST tokenized and analyzed each word form, and VISL CG-3 applied hand-written rules to detect errors and select the appropriate correction. Because these tools were compiled C++ programs, they could only run on the server, making the application dependent on a dedicated machine.

Because RuMOR relies on the same HFST and VISL CG-3 tools as VIEW, its functionality was consolidated into RLTK. The same WebAssembly builds of these tools power both the reading-enhancement and error-detection features, allowing the entire pipeline to execute directly in the user's browser. The consolidated app requires no backend server: it is a fully static webapp that follows the SUSTAIN principles and can be hosted on any standard web server at no ongoing cost.

5.3 Results and Outlook

RLTK demonstrates the viability of the SUSTAIN approach. Since the consolidated extension is functionally equivalent to the original apps, no user testing or similar evaluation is relevant to the purpose of the redesign. RLTK's footprint is moderate: the WASM files for the Russian HFST analyzer and CG are a few megabytes, which load quickly and can be cached by the browser. RLTK is publicly available online.[11]

RLTK provides a template for how other OER web applications can be modernized. By embracing the SUSTAIN model, OER developers can eliminate many traditional points of fragility. The threshold of what can be done client-side has shifted dramatically in recent years, and browsers increasingly serve as universal runtimes across all devices.

[11] https://chromewebstore.google.com/detail/hofbpcgdhdaihhlcjegbfdnmaplnjnco

6. Conclusion

Many OER web applications have yielded impressive educational innovations, yet too often their impact quickly fades as the software becomes inaccessible or unmaintained. To break the cycle of "publish, then perish" in OER software, we must prioritize sustainability in our technology choices. By simplifying architectures, sticking to backward-compatible platforms, minimizing user data entanglements, and open-sourcing our code, we can create OER tools that remain operational and useful for far longer, potentially benefiting many more learners and researchers. Importantly, these principles do not usually require sacrificing functionality or sophistication.

The availability of WebAssembly and in-browser machine learning libraries today provides opportunities to implement even complex OER systems in a more durable form. This shift toward WebAssembly has already been evident in other published research (Pine et al. 2023). By collectively valuing sustainable design, we can ensure that OER research builds a cumulative legacy rather than a series of dead-end prototypes. In sum, a less brittle tech stack is not just a technical convenience; it is central to increasing the real-world impact of OER. When our tools last longer and are easier to share, more educators can adopt them, more learners can benefit from them, and more researchers can build upon them.

The technical recommendations of the SUSTAIN model complement the organizational and planning guidelines advanced by Ahlf et al. (2024), who advocate for integrating sustainability considerations throughout the OER project lifecycle. Together, such approaches can help ensure that OER initiatives remain accessible, non-stagnant, and effective over time.

6.1 Limitations

This article demonstrated how a handful of OER web applications were successfully implemented as SUSTAIN webapps. However, these webapps are based on a rule-based NLP pipeline including finite-state transducers for morphological analysis (using HFST) and constraint grammar (using VISL-CG3), which require less compute power compared to some other NLP methods, particularly Large Language Models (LLMs) and other deep learning architectures. When applications require significantly more storage or compute resources, you must consider whether users' devices will be capable of running the required models. Even if their devices can technically run the models, the impact on system memory and/or battery life may justify deviations from the SUSTAIN model.

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Peer-reviewed article

Repeat after me? Mapping The Relation of Overimitation to Foreign-Language Learning Aptitude

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Abstract

We investigated whether overimitation constitutes a previously unrecognised component of second language (L2) aptitude by examining its relationship with L2 proficiency, established aptitude measures, and domain-general cognitive abilities. Advanced L2 learners completed a novel language-based adaptation of the classic puzzle-box overimitation paradigm alongside measures of grammatical and collocational knowledge, implicit sequence learning, working memory, attentional control, and language aptitude. Graphical modelling revealed three distinct clusters. Linguistic proficiency was associated with grammatical sensitivity, collocational knowledge, and implicit sequence learning, whereas production-based language imitation grouped with explicit aptitude and executive resources. In contrast, procedural overimitation and self-reported mimicry formed an independent dimension, showing little association with either linguistic proficiency or established aptitude measures. These findings suggest that overimitation reflects a socio-motivational disposition that is functionally distinct from the mechanisms supporting L2 learning and linguistic knowledge.

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1. Introduction

It has been claimed that the *homo sapiens* would have been more aptly named *homo imitans* as imitation lies at the heart of being human (Tennie et al., 2009). Humans imitate each other in unique ways: compared to other animals, humans are more willing to copy actions, including irrelevant ones, and this willingness increases with age (McGuigan et al., 2010). This propensity to imitate, and to overimitate more specifically, arguably forms the foundation of our culture and social life which includes many norms and rituals (Tomasello, 1998). Language, too, is a cultural artifact and one of the key artifacts that human beings transmit from one generation to the next. Despite the crucial role imitation plays in cultural transmission, the role of imitation in language learning remains virtually uncharted territory. After a brief introduction to the idea of imitation (Section 1.1), we outline our study (Section 1.2), in which we take a first step toward investigating a possible role of overimitation in second language (L2) learning and establish its position with respect to established measures of L2 learning aptitude.

1.1 (Over)imitation and language learning

Ever since the seminal study by Horner and Whiten (2005) researchers have been fascinated with the human tendency to imitate irrelevant actions: different from their close relative the chimpanzee, 3-4 year old children imitate actions that are visibly unnecessary in relation to the goal of an action sequence, e.g., to retrieve a reward. This is why Blackmore (2007, p. 1) opens her argument on "What makes us human?" succinctly with "To be human is to imitate.". And we *imitate at large*: person-to-person information copying has evolved as an independent social tool, going beyond (or above) the basic evolutionary system of copying information encoded in genes. The tendency to imitate causally unnecessary actions with great precision has been replicated in a number of studies (Hoehl et al., 2019) and has been termed "overimitation" (Lyons et al., 2011). Overimitation increases with age, with older children—and adults even more so—showing a strong tendency to faithfully reproduce irrelevant actions, especially when the action to be imitated is performed by an adult model (McGuigan et al., 2010). The tendency to overimitate also increases when the function of the imitated behaviour is opaque (Hoehl et al., 2019). It has been suggested that human children overimitate because they grow up in a jungle of artifacts and tools with complex underpinnings that are often inaccessible to direct inspection (Lyons et al., 2011). For this reason, automatically encoding *all* of an adult's actions as reliable indicators of the object's inner workings or causal structure may, in fact, be the most rational thing to do. Alternatively, and different from causal accounts, social accounts of overimitation stipulate that, given the high price that is paid for not fitting in, adopting a "copy-when-uncertain" social learning strategy is advantageous (for an overview of different accounts, see Farmer et al., 2018).

Despite the crucial role imitation plays in cultural transmission, the role of imitation in language learning remains virtually uncharted territory. Yet, an overimitation strategy could be advantageous too when learning the group's communication code.[1] The very few studies that have looked at the role imitation plays in first language development (Bannard et al., 2013; Klinger et al., 2016) do confirm that 3- to 10-year-old human children imitate faithfully, especially when the communicative function of a structure remains opaque (Klinger et al., 2016). That is, when children hear a linguistic form but do not yet understand what it accomplishes in communication, they are more likely to reproduce it with high fidelity. In such cases, imitation serves as a bridge: it allows the child to keep the unfamiliar form in circulation in their own speech and "fit in", which in turn provides further opportunities to observe how others use the form. Over time, these repeated exposures and reproductions can lead to a gradual grasp of the function and meaning of the structure.

Because a second language is often learned by older children and adults, who are even more strongly inclined to faithfully reproduce irrelevant aspects, imitation seems a valuable cognitive propensity to consider in L2 learning, too. After all, in many cases, the L2 is characterised by a large number of markers that are unfamiliar from the L1 point of view, not only in form but also in function. Interestingly, imitation has not been studied; yet, there is ample literature on the related concept of repetition and on repetition in the language learning classroom. The views of the 17th century Czech scholar Comenius who encouraged his students to "repeat after" him resurfaced in versions of the audio-lingual and oral-situational approaches that held sway in the early 20th century (Richards & Rodgers, 2014: 44-57) as they meshed well with the associative-behaviourist view that learning occurs as the result of repeated exposure to a stimulus. Heavily criticised during the cognitive revolution, behaviourist approaches were replaced with cognitive approaches in the second half of the 20th century. With behaviourism, repetition disappeared from the language learning stage, yielding the scene to measures of cognitive aptitude (Carroll & Sapon, 1959), aimed at identifying successful L2 classroom learners at the earliest stages of instruction (Robinson, 2005).

1.2 This study

In this study, we take a first step toward investigating a possible role of overimitation in second language learning and determining its position with respect to established measure of L2 learning aptitude.

To pursue this aim, we introduce a protocol based around the classic puzzle box imitation paradigm, adapting it to the domain of language. Specifically, we developed a set of tasks that translate the logic of the puzzle box into linguistically relevant activities:

[1] A voluminous literature on *vicarious learning*, of which imitation is essential part, has existed in cognitive psychology since Bandura's (1986) famous study. For a recent overview see Mayes (2015).

just as the puzzle box requires participants to reproduce actions whose necessity is not always transparent, our linguistic tasks require learners to reproduce linguistic forms whose communicative function is opaque. These tasks involve spoken sequence repetition and character drawing in Chinese, allowing us to assess the degree to which L2 learners engage in overimitation in language-specific contexts. Next, we tested learners' linguistic knowledge (of English) through targeted assessments of collocations and grammatical structures. We also administered a battery of established measures of L2 cognition that we want to position the overimitation tasks against. These include classical tasks such as Operation Span (OSpan) for working memory, the Serial Reaction Time (SRT) task for implicit sequence learning, the Flanker task for attentional control, and the Llama F task for explicit learning aptitude. The tasks are explained in more detail in Section 2.2.

Together, these measures provide a rich profile of both domain-general cognitive capacities and domain-specific linguistic competence, against which the role of overimitation in second language learning can be evaluated. We hypothesised that individuals with a greater propensity for overimitation would perform better on the assessments of collocations and grammatical structures, reflecting a positive association between overimitation and language learning. At the same time, for overimitation to qualify as a distinct aptitude component rather than a proxy for existing constructs, we expected it to show only limited overlap with established measures of language-learning aptitude and related cognitive abilities.

2. Methods[2]

2.1 Participants

Forty-two native speakers of Arabic, resident in the UK, took part in the study (29 females, M = 29.4, SD = 6.72; 13 males, M = 31.1, SD = 5.38). Participants came from Saudi Arabia (n = 20), Egypt (n = 12), Syria (n = 4), Jordan (n = 3), and one each from Algeria and Morocco. All were L2 learners of English who had arrived in the UK in adulthood, with no prior exposure to English during childhood and no knowledge of Chinese. Of the 42 participants, 36 (85.7%) reported learning English through formal education, while 6 (14.3%) were self-taught. Educational backgrounds varied: 7 had completed high school, 13 held an undergraduate or bachelor's degree, 15 a master's degree, and 7 a PhD or equivalent medical qualification. Participants were recruited via university campus leaflets and social media. Most were university students or members

[2] Data, including the full Materials file, are downloadable from the University of Birmingham Institutional Research Archive (UBIRA): https://edata.bham.ac.uk (DOI: https://doi.org/10.25500/edata.bham.00001739). Analysis code for the models reported in this paper is available from https://github.com/ooominds/Overimitation.

of the local community. The study was approved by the University of Birmingham Ethics Committee for Humanities and Social Sciences.

2.2 Task battery

The participants completed the task battery across two testing sessions. It consisted of imitation, language and cognitive tasks and questionnaires, which are described in turn below.

2.2.1 Imitation tasks

The imitation tasks tested general and linguistic imitation abilities. General imitation ability was assessed with the traditional 8-sequence puzzle box (McGuigan et al., 2010) while visual and auditory imitation abilities in the language domain were tested with a novel sentence repeating and character writing task. It took on average 15 minutes to complete all 3 imitation tasks. For all three tasks the same two types of scores, Fidelity and Overimitation, were calculated following McGuigan et al. (2010). Fidelity captures whether the demonstrated *order* of steps was retained (the steps needed to be performed but could be performed in different order); overimitation measures whether *unnecessary* steps are retained or skipped. The scoring protocols are available in Appendix.

Puzzle box. The general imitation task tested procedural imitation abilities where participants were presented with video displaying a sequence of 8 activities performed on a small box leading to obtaining a reward that was hidden inside.[3] Two versions of the video were created, with either a transparent or an opaque box (see Figures 1 and 2). The video was played three consecutive times; at the end of the video a voice instructed the participants that it was now their turn "to give it a go"; participants were handed a transparent or opaque box without further instructions. Participants were video recorded while performing this task.

[3] We would like to thank Dr Hui Sun for designing and testing the puzzle box while a postdoctoral research associate on the Leverhulme Trust Research Leadership Award (RL-2016-001 to D. Divjak) that funded this research.



Figure 1. Opaque puzzle box



Figure 2. Transparent puzzle box

Spoken sentence repetition. Spoken Chinese is characterised not only by sounds but also by tones (rising, falling, flat). To the untrained ear, this poses a double problem: identifying and memorising the sounds as well as the tones. For consistency with the visual imitation task, we use 8-character sentences. The auditory stimuli were comprised of two Chinese sentences recorded by a native Chinese speaker: *I sincerely wish you a happy birthday* and *Welcome to this university*. They were of similar length and complexity. In the task, participants heard a Chinese sentence via headphones, and were asked to repeat it; their voice was recorded. As with the puzzle box task, the stimuli were played three consecutive times before participants were asked to repeat them. The productions were scored by a native speaker of Chinese for fidelity and, because it is impossible to judge whether components are unnecessary in spoken production when meaning is not available, productions were instead scored for pronunciation accuracy (average of all correctly repeated syllables), tone accuracy (average of all syllables produced with correct tone), and chunking (number of correctly segmented chunks).

Visual character drawing. Chinese characters are written using strokes that are executed in a particular sequence; however, to the uninitiated, characters could be formed in many different ways. Two characters of similar length and complexity were selected for this task: *honesty* and *depend on* (see Figures 3 and 4). Both characters consist of 8 strokes, some of which are simple (they consist of one line) and some of which are complex (they consist of 2 lines forming, e.g., an angle) and are executed in a specific order. A video of a Chinese character being written was presented three consecutive times and participants were asked to produce the same character. Participants were video recorded while completing the task and the recordings as well as the physical copies produced in these sessions were scored on a stroke-by-stroke basis for overimitation (flick of the hand and speed of writing), and fidelity (presence, sequence, accuracy and direction of a stroke). Further measures captured structure (spatial position of the character on the page), corrections (number of corrections made), and time to draw the character.



Figure 3. Chinese character: **honesty**



Figure 4 Chinese character: **depend on**

2.2.2 Language tasks

We ran two tasks that measure vocabulary size and grammar knowledge in English.

Collocations. The collocation task consisted of a 40-item *Words that go together* (WGT) questionnaire that tests receptive knowledge of collocations (Dąbrowska, 2014). Each item comprised a set of five phrases of varying frequency and collocation strength and the task was to choose one phrase that sounded the most natural or familiar. Half of the items consisted of a verb followed by an abstract noun (e.g., *raise standards*), and the other half of an adjective followed by an abstract noun (e.g., *bitter dispute*). Participants were encouraged to guess if they were not sure. The task was administered in Qualtrics and took 10 minutes to complete on average.

Grammaticality judgement task (GJT). The grammaticality judgement task consisted of 80 sentences half of which were grammatical and half ungrammatical. 60 sentences, half of which were grammatical, were selected from DeKeyser (2000): they contained Past tense, Plural, Third-Person Singular, Present Progressive, Determiners, Pronominalization, Particle Movement, Subcategorization, Yes-No Questions, Wh-Questions, Word Order. A further 20 sentences were created for the purpose of this study and contained examples assessing the knowledge of determiners and tenses (Present perfect, Future, Past Perfect and Present Progressive); see Appendix for the complete list of stimuli. The sentences appeared in a random order on a computer screen, and the participants were asked to press either M or Z on the keyboard to indicate sentence grammaticality. The experimental stimuli were preceded by 8 practice items. The task was created and administered in the PsychoPy software (Peirce et al., 2019) and took about 10 minutes to complete.

2.2.3. Language learning aptitude tasks

Language-learning aptitude was assessed using complementary measures of explicit language-learning aptitude (LLAMA F) and implicit sequence learning (Serial Reaction Time; SRT), capturing two mechanisms widely implicated in successful language acquisition.

Llama F task. Explicit language learning ability was tested with the online Llama F task which is available at www.lognostics.co.uk (Meara & Rogers, 2019).[4] In this task

[4] The online software was updated towards the end of the data collection which resulted in 6 participants taking the new version of Llama F. The new version has a timer on the screen and a revised scoring method. We

participants are presented with pictures and corresponding labels. They are given 4 minutes in the learning phase to figure out how the pictures relate to the labels. In the testing phase a new set of pictures is presented, and participants must select labels that describe the pictures. The Llama F score is represented on a scale from 0-20. The task took on average 10 minutes to complete.

Serial Reaction Time (SRT) task. The SRT task is a multi-choice, disjunctive task designed to evaluate improvements in procedural memory span for structured, statistically predictable sequences (Vakil et al., 2017). We conducted this task using the OpenSesame software (Mathôt et al., 2012). In the task, a dot appears on the screen in one of four positions (up, down, right, or left), and participants are required to press the corresponding button on a response pad as quickly as possible. We utilized second-order conditional sequences (SOC; Gabriel et al., 2013; Vakil et al., 2017; Wilkinson & Shanks, 2004), where the prediction of a target location depends on the two preceding locations. After completing the task, participants filled out a questionnaire designed to assess their awareness of the pattern. The entire task took approximately 5 minutes to complete.

2.2.4 Memory and Attention tasks

In addition, we ran several tasks that are standardly used in L2 research and tested working memory and attention.

The Operation Span Task (OSPAN). OSPAN is a complex task designed to assess working memory capacity. The version used in this study incorporates an arithmetic component and was administered using the PsychoPy software (Peirce et al., 2019). During the task, participants first see a letter on the screen, followed by an arithmetic equation (e.g., 3 x 7 = 21). They must then determine whether the equation is correct by pressing the appropriate key. At the end of each trial, participants are required to recall and enter the letter that was shown at the beginning. This concludes the trial, and a new letter appears to start the next trial. The task progresses by increasing the number of letters in each trial, with the longest sequence containing up to 7 letters. The participant's score reflects the number of letters correctly recalled in their original order. The entire task typically took around 15 minutes to complete.

Flanker task. To assess executive control mechanisms, we administered the Flanker task, which measures the ability to suppress interference from distracting stimuli while focusing attention on a task-relevant target. Participants saw a row of 5 arrows on the screen and had to press a key corresponding to the direction of the arrow at the centre. We used congruent conditions in which all arrows pointed the same direction (no interference from any distractors), and incongruent conditions where the target stimulus

successfully covered the timer on the screen to minimise the distraction; however, the new scores were calculated in a different way that cannot be translated into the old scores.

is flanked by distractors (arrows pointing in another direction) that may cause response interference. The main task was preceded by some practice trials. It took on average 3 minutes to complete the task.

2.2.5 Demographic and Mimicry Questionnaires

In addition to a **language background questionnaire** which elicited information on participants' demographic and educational profiles, language learning history, and cultural orientation we administered a **mimicry questionnaire** which assessed the extent to which individuals engage in mimicry—the behaviour of imitating or copying others' actions, expressions, or mannerisms. This instrument was adapted from the Iowa Mimicry Questionnaire (IMQ; Ash et al., 2024) to focus specifically on language-related imitation. A brief six-item self-report questionnaire assessed participants' inclination to mimic linguistic input. Items targeted behaviours such as talking to oneself in the target language, memorising songs or poems, mimicking native-like accents, and reproducing phrases encountered in speech or text. Participants also indicated whether they mimic random environmental sounds and, if so, whether such mimicry occurs spontaneously or is consciously controlled. Each item was rated on a Likert-type scale reflecting frequency or agreement.

2.3 Testing sessions: order of tasks

Participants completed two testing sessions scheduled one week apart, during which they completed our battery of imitation, language, and cognitive tasks as well as questionnaires. At the beginning of each session, participants completed one version of the imitation tasks (Chinese sentence repetition and character writing) and the puzzle box task. Each participant was assigned to only one puzzle-box condition throughout the study (transparent or opaque),

This was followed by the Serial Reaction Time task, which was also identical across both sessions, for the same reasons. In the first session, participants additionally completed the Grammaticality Judgement Task, a collocation task, and a language background questionnaire. In the second session, they completed measures of memory, attention, LLAMA, and the Mimicry Questionnaire. Each testing session lasted approximately one hour. Participants received a £25 Amazon voucher upon completion of both sessions.

3. Results

3.1 Consistency of performance

Because some of our tasks are novel, we started out by assessing the reliability of our instruments. Performance across the box imitation task showed limited variance, with participants scoring near ceiling. Note that the imitation-box task is not intended to differentiate participants by difficulty, but rather to ensure universal recall of the steps so that any skipped or re-ordered actions reflect choice rather than memory limitations. We used paired-samples t-tests to compare performance across the two sessions. In addition to statistical significance testing, Cohen's d was calculated as a measure of effect size. Following conventional benchmarks, values of approximately 0.20, 0.50, and 0.80 were interpreted as small, medium, and large effects, respectively (Cohen, 1988). The results showed consistent performance across both versions of the box task (for details see Table 1).

Measure	***t-test* (df)**	***p-value*[5]**	**Cohen's *d***
Over-imitation	0.40 (41)	.688	-0.06
Fidelity	1.42 (41)	.164	-0.22
Fidelity-specific	1.30 (41)	.200	-0.20

Table 1. Performance differences on the box imitation task across sessions

To examine the effect of box type, participants were divided into two independent groups according to the condition they completed (opaque vs. transparent). Group differences were analysed using independent-samples t-tests followed by Cohen's effect sizes. Box type (transparent vs opaque) had no effect on the results for over-imitation in Session 1 or Session 2, see Table (2). The only significant difference was found in the time taken to perform the task with the second session taking less time, as expected (t(42) = 3.23, p = .002, Cohen's d = -0.49).

Measure	**Session**	***t-test* (df)[6]**	***p-value***	**Cohen's *d***
Over-imitation	1	-0.45 (39.07)	.652	-0.14
Over-imitation	2	0.00 (38.64)	1.00	0.00
Fidelity	1	0.28 (36.34)	.784	0.09
Fidelity	2	0.63 (36.97)	.535	0.19
Fidelity-specific	1	0.63 (34.69)	.536	0.19
Fidelity-specific	2	0.00 (39.80)	1.00	0.00

[5] The p-values reported in all tables are uncorrected for multiple comparisons.
[6] Degrees of freedom are non-integer because Welch's t-tests for independent samples were used, which do not assume equal variances between groups.

Duration	1	-0.04 (39.50)	.971	-0.01
Duration	2	0.43 (33.54)	.670	0.13

Table 2. Performance differences on the box imitation task by condition

Performance in the language imitation tasks was stable across stimuli, with no major differences between the two types of either spoken or written items, indicating that both the materials and scoring procedure were reliable. No significant differences were found in the speaking task between the sentences for pronunciation, tone or chunking; for details see Table (3).

Measure	***t-test* (df)**	***p-value***	**Cohen's *d***
Pronunciation	1.47 (39)	.151	-0.23
Tone	0.60 (39)	.551	-0.10
Chunking	1.97 (38)	.056	-0.32

Table 3. Performance differences across speaking stimuli

In the character writing task, no differences emerged between the two characters for overimitation, correction or fidelity but structure did yield significant results; for details see Table (4).

Measure	***t-test* (df)**	***p-value***	**Cohen's *d***
Over-imitation	0.70 (41)	.487	-0.11
Time	1.35 (41)	.184	-0.21
Correction	1.03 (41)	.309	-0.16
Fidelity	2.05 (41)	.047	-0.32
Structure	3.11 (41)	.003 (0.015 after correction)	-0.48

Table 4. Performance differences across writing stimuli

Among the cognitive tasks, the SRT task was performed twice because concerns have been raised about its reliability as an individual differences measure (Oliveira et al., 2023; Oliveira et al., 2024). Using paired-samples t-tests, we found no significant differences between the participant-specific Intercepts (t-test values: $t(40) = -0.39$, $p = .696$, $d = 0.06$) or Slopes (t-test values: $t(40) = 0.53$, $p = .601$, $d = -0.08$) estimated from the SRT task across the two testing sessions. This demonstrated that our (short) version of SRT yields a reliable measure of implicit learning ability, revealing a stable individual trait.

For completeness we also report accuracy in the processing component of the OSPAN task which was high with 95% of participants achieving at least the cut-off score of 60, indicating good task compliance. In the Flanker task, participants' mean

reaction times were 544.57 ms (SD=83.9) for congruent trials and 619.3 ms (SD=73.85) for incongruent trials, showing the expected effect, with slower responses to incongruent stimuli.

3.2 Data preparation

We applied Principal Component Analysis (PCA) to responses on the newly developed Language Mimicry Questionnaire for two reasons. First, because the questionnaire was adapted from the Iowa Mimicry Questionnaire (Ash et al., 2024) to a language-specific context, PCA allowed us to examine whether the items clustered into interpretable dimensions consistent with the intended construct. Although Exploratory Factor Analysis is often used to investigate latent constructs, our primary goal was data reduction rather than the development of a formal measurement model. Second, PCA reduced the number of predictors entering subsequent analyses by summarising responses across multiple items into a smaller set of component scores, thereby simplifying the modelling procedure and reducing the risk of multicollinearity. All PCA calculations, including psychometric characteristics (α, λ_6, ω), were obtained using the psych package (v. 2.4.6.26) in R (v. 4.4.2). The questionnaire demonstrated acceptable internal consistency and construct validity (Cronbach's $\alpha = 0.69$; Guttman's $\lambda_6 = 0.74$; McDonald's $\omega_{total} = 0.83$). Three principal components were retained based on inspection of the scree plot. To aid interpretability, varimax rotation was applied, yielding a solution with three orthogonal (i.e., uncorrelated) dimensions of self-reported mimicry. The first component (External Mimicry) reflected imitation of observable linguistic behaviour such as accents, phrases, and speech sounds. The second component (Internal Mimicry) captured internalised rehearsal behaviours, including silently repeating language, self-directed speech, and memorisation of verbal material such as lyrics or poems. The third component (Compulsive Mimicry) reflected a tendency toward involuntary or compulsive imitation of environmental or linguistic sounds. Component scores were extracted for each participant and used as summary indices of these three dimensions in subsequent analyses.

We also applied principal component analysis (PCA) separately within each imitation modality to reduce the number of behavioural imitation measures and derive a single summary score. The manual imitation PCA included four measures of fidelity and overimitation obtained from the puzzle-box task; the written imitation PCA included four measures of fidelity and overimitation from the reproduction of two Chinese characters; and the spoken imitation PCA included six measures assessing pronunciation, tone, and chunking in the imitation of two Chinese sentences. For each modality, only the first principal component was retained because it captured the variance shared across the individual measures. The resulting component scores served

as summary indices of Manual Imitation, Written Imitation, and Spoken Imitation, respectively, and were used in all subsequent analyses.

3.3 Graphical modelling

The data analysis proceeded in two stages. First, we tested whether the relationships between the predictors and GJT differed across the two experimental conditions (BoxType: Transparent vs. Opaque) using the InvariantCausalPrediction package (v. 0.8) in R. Invariant Causal Prediction evaluates whether predictor–outcome relationships remain stable across different environments or conditions. We specified GJT as the dependent variable, the remaining 12 measures as predictors, and BoxType as the environmental/condition variable. All p-values exceeded .10, indicating no evidence that the predictor–outcome relationships varied between the Transparent and Opaque conditions.[7] We therefore proceeded with a single graphical model pooling observations across both conditions.

We analysed the conditional independence structure of the 13 variables using Graphical Modelling. Partial correlations, computed using the ppcor package (v. 1.1) for R, served as sufficient statistics for model estimation. These were transformed via Fisher's Z to obtain p-values, implemented through a custom-made R function. The resulting graphical structure was inferred using the pcalg package (v. 2.7-12) and visualised with the help of the igraph package (v. 2.1.1) for R. The resulting graph (presented in Figure 5, R output manually adapted for accessibility) reveals a clear and interpretable network of relationships: vertices of different shapes represent different classes of variables, whereas edges denote statistically significant conditional associations between them.

[7] As the Collocation scores can also be considered a dependent variable, we tested the invariance for Collocation as well (excluding only GJT). Again, all p-values exceeded 0.1, thus, confirming the invariance of effects.

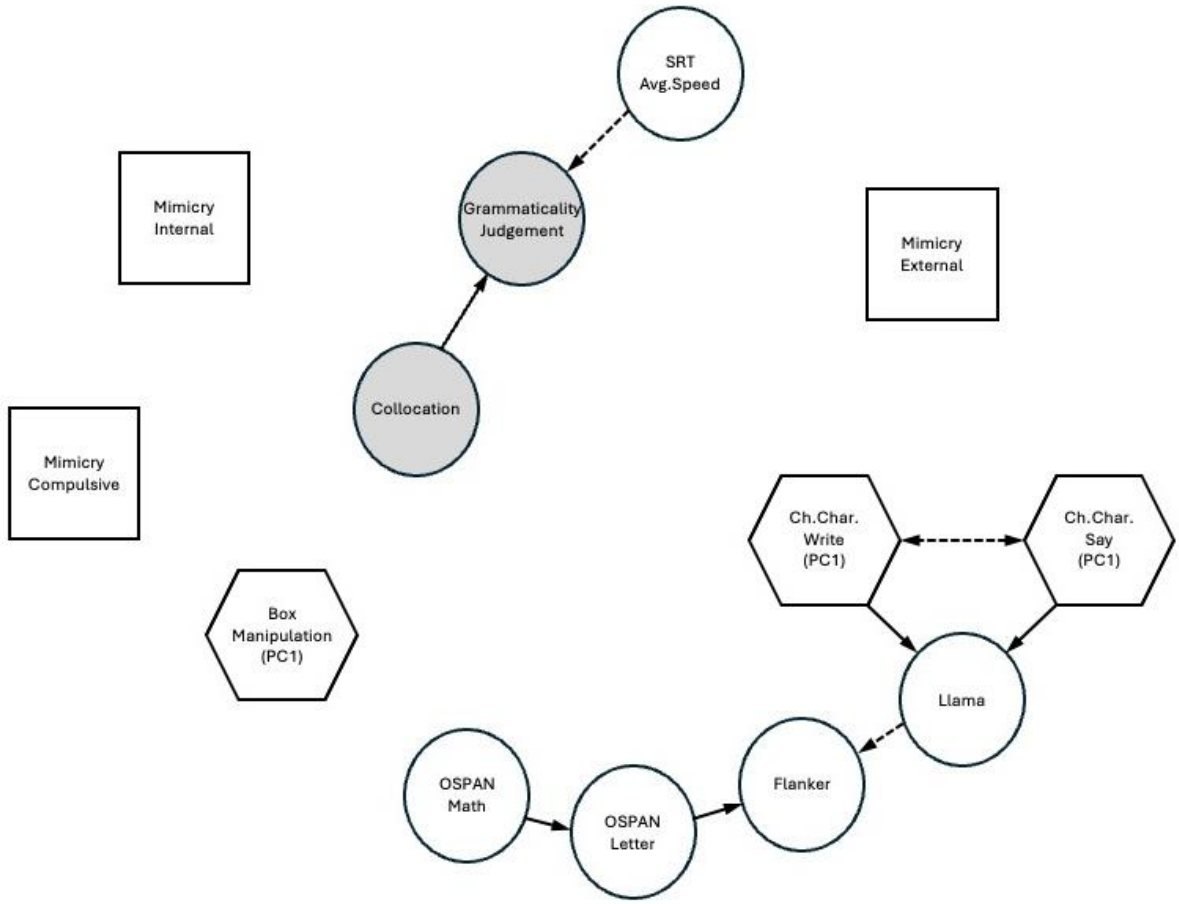


Figure 1. Graphical model. Gray-shaded circles = language knowledge measures; squares = principal components of mimicry test; hexagons = principal components of behavioural imitation tests; white circles = various cognitive tests, including Llama F. Dashed-line edges represent negative conditional associations, whereas solid-line edges represent positive conditional associations.

3.4 Final results

The network shown in Figure 5 splits into two largely distinct clusters of variables: (1) a linguistic proficiency cluster, linking the Grammaticality Judgement Task, Collocation, and Serial Reaction Time task, and (2) a production-based imitation cluster centred on Flanker with two wings leading into it: OSPAN (Letter and Math) directly to Flanker and Speaking (Chinese Character Say) and Writing (Chinese Character Write) via LLAMA F to Flanker. Self-reported mimicry measures (Mimic Internal, Mimic External and Mimic Compulsively) as well as Box Manipulation were largely isolated from the main language network, showing no direct dependency on any other variable in the set.

The linguistic proficiency cluster captures relationships among measures of explicit and implicit linguistic aptitude and knowledge. Grammaticality judgments were affected positively by collocational knowledge (p = .002), indicating shared lexical–

grammatical proficiency. Grammaticality judgments were also negatively dependent on the SRT intercept (p = .002), suggesting that participants with higher grammatical sensitivity demonstrated faster implicit sequence learning. Together, these links point to an integrated linguistic competence combining explicit grammatical awareness with implicit learning efficiency.

In the production-based imitation cluster, Llama F revealed a positive dependency on Speaking (p = .003) and Writing (p = .013), indicating that participants with stronger explicit learning aptitude performed better in both modalities. However, the relationship between Speaking and Writing was negative and bidirectional (p = .044). Flanker was negatively affected by Llama F (p = .015) and positively by OSPAN Letter (p = .048): participants with stronger explicit learning aptitude performed better (i.e., faster or more accurately) on the Flanker task, while better working-memory performance was associated with less efficient Flanker performance. OSPAN Letter was affected by OSPAN Math (p = .000), which is explained by the fact that both measures were part of the same task, tapping into the same memory construct.

4. Discussion

We set out to investigate a possible role of overimitation in second language learning and establish its position with respect to established measure of L2 learning aptitude. More specifically, we examined how overimitation and associated imitation behaviours relate to established measures of language learning, of aptitude for language and domain-general cognitive abilities such as memory and attention. We hypothesised that individuals with a greater propensity for overimitation would perform better on the Grammaticality Judgement and Collocations Tasks, reflecting a positive association between overimitation and language learning. At the same time, for overimitation to qualify as a distinct aptitude component rather than a proxy for existing constructs, we expected it to show only limited overlap with established measures of language-learning aptitude and related cognitive abilities.

Across tasks, a consistent picture emerges for our group of advanced L2 learners: while linguistic, language aptitude and general cognitive abilities form coherent, interpretable structures aligned with existing theoretical models, overimitation behaves as a largely independent construct. Crucially, overimitation does not covary with language knowledge or language aptitude, suggesting functional independence between the constructs.

A key outcome of the graphical modelling is the emergence of a linguistic proficiency cluster that combines grammatical sensitivity, collocational knowledge, and implicit sequence learning. The tight association between grammaticality judgments and collocational knowledge reinforces a long-standing view in usage-based and constructionist approaches: that grammatical knowledge and lexical knowledge are

deeply intertwined expressions of a shared underlying sensitivity to distributional patterns (Langacker, 1987). More surprising is the way this integrated linguistic competence is also connected to performance on an implicit sequence-learning task. This suggests that individuals who are better attuned to lexical–grammatical structure may also possess a more general sensitivity to patterned input, extending beyond the linguistic domain. Such a link resonates with theoretical proposals that grammar and lexicon emerge from the same (statistical) learning mechanisms, but it also raises questions about how domain-general sequential processing supports higher-order linguistic judgments.

In contrast, production-based language imitation (spoken and written Chinese reproduction) grouped with explicit learning aptitude and executive resources. This pattern suggests that short-term linguistic imitation, despite its surface resemblance to procedural imitation, is supported primarily by controlled processes: encoding novel forms, maintaining them in working memory, and reproducing them accurately. The separation of production-based imitation from the linguistic proficiency cluster underscores that immediate reproduction of novel linguistic material does not necessarily tap into the same mechanisms that support long-term grammatical or lexical knowledge. This division is consistent with models positing the existence of a "phonological loop" (Baddeley et al., 2017) which supports initial encoding but is only indirectly related to the consolidation of abstract linguistic structure.

Most strikingly, procedural overimitation and self-reported mimicry were largely unconnected to either of these linguistic or cognitive clusters. This theoretically important dissociation suggests that propensity for overimitation—at least as elicited by a non-social, object-based paradigm as the puzzle box—may not reflect a language aptitude-like cognitive capacity. Instead, it may represent a socio-motivational disposition, consistent with accounts that frame overimitation as driven by affiliative goals born out of a desire for social connectedness (often with a specific individual or group, Over & Carpenter, 2013) or norm-tracking born out of a desire to conform to how things ought to be done within a specific social or cultural context (Keupp et al., 2013). The lack of integration with explicit aptitude, implicit learning, or working memory constraints indicates that overimitation propensity may operate along dimensions orthogonal to those traditionally associated with language learning.

Taken together, these findings support a multidimensional model, in which linguistic proficiency, controlled linguistic imitation, and social imitation reflect separable systems with distinct cognitive underpinnings. For theories linking imitation to language learning, the results imply that only certain forms of imitation—those activating the language network and relying on controlled, explicitly supported mechanisms—align with known language-learning aptitudes. Procedural overimitation, in contrast, may occupy a different functional niche, one that is socially rather than cognitively grounded. Future work should test whether different levels of proficiency yield different results;

whether more socially embedded overimitation paradigms produce tighter links to language learning; or whether overimitation should indeed be treated as a domain-general socio-cognitive trait independent of aptitude. Longitudinal and predictive modelling approaches will be essential to clarifying whether these clusters map onto real-world learning trajectories.

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Peer-reviewed article

Variation in translation: Entropy for Norwegian verbs based on Russian translations of the novel *Sofies verden*

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Abstract

This pilot study explores translation variability between Norwegian and Russian verbs using entropy-based metrics. By analysing multiple Russian translations from the RuN-IT corpus, we quantify the (un)predictability of translation choices and identify various tense–aspect–mood (TAM) patterns that are of interest for contrastive grammar studies of Germanic and Slavic verbs. The findings from this pilot study confirm some earlier observations from research using parallel corpora, while at the same time identifying certain patterns overlooked by traditional methods. Methodologically, the article proposes verb entropy as a simple, reproducible metric for translation variation that can complement traditional parallel-corpus work.

1. Background

A recurrent problem with the use of translations in foreign language teaching and linguistic research is the reliability of the translation.[1] The data are typically, at best, obtained through parallel corpora, such as the ones compiled at the University of Oslo (going back to the 1990s, see Johansson (2007)):

(1N) #1 Sofie Amundsen var på vei hjem fra skolen. (first sentence of the novel *Sofies Verden* from 1991 by Jostein Gaarder, Norwegian original, source Oslo Multilingual Corpus)

[1] I'm grateful to the editors and reviewers for constructive feedback and to Victoria Li Fossum for helping me with programming in Python.

(1E) Sophie Amundsen was on her way home from school. (English translation, OMC)
(1G) Sofie Amundsen war auf dem Heimweg von der Schule. (German translation, OMC)

For the RuN-corpus (2008-2010), we built further on OMC and added the Russian translation of *Sofies verden*:

(1R) София Амуннсен возвращалась домой из школы. (Russian translation, RuN)

For the so-called "Interaktiv fremmedspråkportal" (IFSP 2024-), currently under construction at the University of Oslo, we have also added the Ukrainian translation:

(1U) Софія Амундсен поверталася після занять додому. (Ukrainian translation, IFSP)

The above translations are all done by professional translators, published in their respective countries. To investigate how many acceptable solutions actually exist for a given sentence, we constructed the RuN Interactive Translation database (RuN-IT). Norwegian students of Russian (L3/L4, CEFR level varying from A2 to B2) translate short fiction excerpts (including *Sofies verden*) into Russian via an online interface and can compare their own solutions with several alternative translations made by Russians fluent in Norwegian. For the relevant excerpt from *Sofies verden* we have 11 such non-professional translations by native speakers in addition to the professional one in (1R).

For the new project IFSP, which involves migrating RuN-IT and adding new languages such as Ukrainian, German, French, and Spanish, we have also included AI translations made by DeepL and ChatGPT-4. In this article, I will instead focus on the "old" L1 data obtained for Russian through RuN-IT. RuN-IT contains about 1000 original Norwegian sentences (≈ 2500 verbs) and can be viewed as a small multi-retranslation corpus in the sense of Cheesman et al. (2017), who advocate using multiple independent translations of the same text to quantify variation and translator style. In this pilot study, I focus on one excerpt from *Sofies verden*, specifically 163 Norwegian verbs automatically identified by the Stanza POS-tagger in Python.

The primary contribution is methodological: I explore how word translation entropy can be used to quantify variation in multiple human translations of the same literary source text and how this quantitative signal can reveal subtle tense–aspect–mood (TAM) patterns that matter for contrastive grammar and L3/L4 instruction. The secondary contribution is descriptive: based on 163 Norwegian verb forms, I document several non-trivial TAM patterns in Norwegian vs. Russian (with occasional reference to Ukrainian), such as the use of Russian perfective infinitives under habitual marking and the Russian imperfective past for Norwegian experiential/universal perfects.

My focus on verbs can be justified on several grounds. Schultzen (2021) already did a study of aspectual competition and variation in the RuN-IT database (excluding

translations by L3/L4 students of Russian). The textbook[2] on translation from Norwegian to Russian by Nesset and Makarova (2016) contains chapters dedicated to verbal aspect (chapter 2), motion verbs (chapter 3) in addition to sections on modals (6.9), all of which are relevant for this work. In this respect, I follow the mentioned authors and focus on verbs in translation not primarily from a lexical point of view, but as a point of departure for the study of tense–aspect–mood-features (so-called TAM-categories).

2. Entropy in translation

The present study is explicitly exploratory and should be regarded as a pilot study of verbal categories. I do not test pre-registered hypotheses; instead, I "fish for results" in the sense of scanning the RuN-IT data for systematic entropy patterns that warrant more targeted hypothesis-testing in future work.

One reason for focusing on verbs is that they conveniently allow for the measurement of entropy. For each Norwegian verb in the original text, I sampled twelve Russian translations of that verb. I assumed that if no Russian verb was used in the translation, a null form had been used. Three additional assumptions were made: conservation of the number of verbs from the original to the translation and conservation of the order of verbs in the original and the translation. Finally, I assumed that the twelve translators provide us with all possible translations of the Norwegian verb in the original. While these assumptions clearly yield incorrect results at times, I opted against manual cleaning and post-processing of the data. The last assumption—that twelve translators collectively approximate an exhaustive set of acceptable Russian translations for a given Norwegian verb—is clearly unrealistic. It is adopted here as a modelling shortcut to make entropy computable on a small, fixed sample, and all results should be interpreted with this limitation in mind.

In the next step, I calculated in Python the *word translation entropy* (Bangalore et al. (2016), viz. the information value of the distribution over Russian translations of each Norwegian verb. Finally, I sorted the Norwegian verbs according to entropy to determine which Norwegian verbs were least ambiguous (lowest entropy) and which were most ambiguous (highest entropy) in the specific context of translation of *Sofies verden* to Russian.

Entropy measures the (un)predictability of a set of outcomes. In this study, the metric reflects the diversity of Russian verb forms (including 'null_V') used for each Norwegian verb. For details on the standard formula[3] for word translation entropy that

[2] In the mentioned textbook the Norwegian source text is constructed, and the authors provide only one translation into Russian — one "solution".

[3] These ideas famously go back to the American mathematician Claude Shannon (1916–2001), the father of information theory.

was used in Python, see Bangalore et al. (2016:214), Wei (2023:47), and Wang et al. (2025):

$$H(s) = -\sum_{i=1}^{n} p(x_i) \log_2 p(x_i)$$

Low entropy (close to 0) indicates that the Russian translations for a given Norwegian verb are consistent, uniform and predictable, with one or a few verb forms dominating. High entropy indicates that there is a wide variety of Russian verb forms used to translate the Norwegian verb, with no single form standing out. However, one cannot, strictly speaking, infer from high entropy that the individual translator was hesitant and experienced difficulties in their choice of translation. Nevertheless, the word translation entropy is often used as a predictor variable to describe the lexical translation choices that a specific translator must make. This step rests on the assumption that the participants share the same mental lexicon, so that the entropy extrapolates from the translations made by different native speakers to the potential performance of one translator (Wei, 2023:46). In principle, one could use resampling techniques to derive approximate confidence intervals for each entropy value. Given the small sample size (n = 12), I leave such inference-oriented extensions to future work and restrict myself here to descriptive entropy comparisons.

Let me sum up the methodological limitations and potential biases of the study.

First, the RuN-IT dataset comprises twelve native-speaker translations of a short excerpt. This is rich by corpus standards but small relative to the conceptual space of acceptable translations.

Second, because the counter operates on surface strings, morphological variants such as *прошла* vs. *прошли* are treated as distinct types. In some cases, this is linguistically motivated—for instance, plural *прошли* in my data set signals a comitative construction that is unavailable in Norwegian. In other cases, string-level distinctions may inflate entropy without reflecting meaningful variation in TAM features.

Finally, to keep the procedure reproducible and scalable, I opted against manual cleaning of the data, even though this occasionally yields “messy” counters. The downside is that entropy sometimes mixes lexical variation, morphological variation, and tagging artefacts. A natural next step is to compute entropy over *features* (e.g. aspect, tense, finiteness) rather than over surface forms, which would both reduce sparsity in the data set and target the TAM categories of theoretical interest.

3. Discussion of RuN-IT translation data

I will present the data chronologically, as they appear in the novel. The average entropy for 163 verbs in the Norwegian original text is 1.6. The number does not mean much in isolation, but we keep it in mind in the discussion of the data.

(1N') #1 Sofie Amundsen var på vei hjem fra skolen. (Entropy of the Norwegian verb form "var" based on (1R'): 1.33.)
(1R') Counter #1 ('шла': 6, 'возвращалась': 5, 'была': 1)

The verb entropy 1.33 for #1 is slightly below the average entropy 1.6 in my dataset. The translations are basically reduced to two alternatives. Both verbs are imperfective, but the coarse-grained counter does not take aspectual morphology into consideration. The third alternative in (1R'), which only occurs once, is a calque from the Norwegian original, a typical case of "translationese" ('была по пути домой').

The second sentence of the novel is interesting from a temporal–aspectual point of view:

(2N) #2 Det første stykket hadde hun gått sammen med Jorunn. (Entropy of the Norwegian composite verb form 'hadde gått' based on (2R'): 1.28.)
(2E) She had walked the first part of the way with Joanna. (OMC)
(2R) Первый отрезок пути она шла вместе с Йорунн. (RuN)
(2R') Counter #2 ('прошла': 7, 'шла': 4, 'прошли': 1)

The past perfect auxiliary 'hadde' in the Norwegian original is tagged as AUX and not VERB by the Python-library Stanza, and thus not counted in the statistics, which is good for my purposes here since Norwegian frequently uses composite verb forms with auxiliary verbs, where Russian only has one verb.

Note that the counter in Python makes a distinction between strings, hence the plural 'прошли' is counted separately from the singular 'прошла'. On a constructional view (cf. the Tromsø project the Russian Constructicon (Bast et. al. 2021)), this choice can be justified since the use of plural is indicative of a comitative subject ('Первую часть пути они прошли вместе с Йорун'—translation from RuN-IT) which is a construction characteristic of Russian but not possible in Norwegian.

In (2R') we observe aspectual variance (cf. the study of Janda & Reynolds (2019)): 8 uses of the perfective vs. 4 uses of the imperfective. As noted by Schultzen (2021:38), 'идти' and 'пройти' do not normally constitute a trivial aspectual pair, but here this seems to be the case due to the presence of the direct object, the incremental theme 'первый отрезок/первую часть пути'. In fact, the use of the imperfective in (2R) comes close to a general-factual imperfective, while the alternative choice of the perfective more directly renders the resultant state component of the past perfective in the Norwegian original (see Grønn & von Stechow (2020) for a discussion of such aspectual translation patterns between Slavic and Germanic).

(3N) #9 Ved det store matsenteret hadde de skilt lag. (entropy 1.33)

(3E) When they got to the supermarket they went their separate ways. (OMC)
(3R) Возле продуктового центра, с его множеством магазинов и лавочек, дороги подруг разошлись. (RuN)
(3R') Counter #9 ('разошлись': 6, 'расстались': 5, 'попрощались': 1)

The official, published Russian translation differs slightly from the others since the subject in (3R) is inanimate 'дороги подруг', while in the 11 others, the subject is animate 'они (подруги)'. One could imagine that an inanimate subject makes the description less dynamic and would trigger imperfective aspect. This is what we get in the official Ukrainian translation ('their paths diverged'):

(3U) Біля великого супермаркету їхні шляхи розходилися. (IFSP)

A few sentences later, these aspectual subtleties come to fore:

(4N) #18 Her begynte den dype skogen. (entropy 0.00) #19 Nå svingte hun inn i Kløverveien. (entropy 1.19) #20 Helt innerst gjorde den en brå sving. (entropy 2.45)
(4E) This was where the woods began. She turned the corner into Clover Close. At the end of the road there was a sharp bend, (OMC)
(4R) Ведь прямо за их садом начинался густой лес. София свернула на Клёвервейен. Ближе к концу улица делала резкий изгиб, (RuN)
(4R') Counter #18 ('начинался': 12); Counter #19 ('свернула': 8, 'повернула': 3, 'завернула': 1); Counter #20 ('делала': 5, 'уходила': 2, 'был': 1, 'заворачивал': 1, 'заканчивалась': 1, 'имела': 1, 'сворачивала': 1)

The aspectual pattern in (4) is extraordinarily neat. The first (#18) and last (#20) sentences of (4N) are stative, backgrounded descriptions of the surrounding nature, and all Russian translations use the imperfective. For #18 all 12 translators choose the same form, 'начинался', giving verb entropy 0. This is pedagogically useful: despite the entropy signalling a highly expected and unambiguous choice, the imperfective may still not be obvious for L3/L4 learners, especially given the following sentence #19, where all translators switch to a perfective verb form to encode a dynamic action from Sophie's perspective. In #20, the verbs are again in the imperfective since the description relates to the static environment. The high entropy in #20 is due only to lexical variation; the consistent use of the imperfective is the main pedagogical takeaway.

The three sentences in (4) thus convincingly illustrate an aspectual rule in Russian: Static descriptions in the imperfective vs. dynamic events in the perfective aspect.[4] The same aspectual rule applies also in Ukrainian:

(4U) Тут починався дрімучий ліс. Ось вона звернула на Клевервейєн. Вулиця закінчувалася несподіваним закрутом, (IFSP)

[4] Of course, this rule depends on what we understand by "static descriptions vs. dynamic events". More generally, Janda and Reynolds (2019) found that in at least 17% of verbs in running text, native speakers rate both imperfective and perfective verbs as acceptable in the same contexts.

The next example is a complex sentence with several verb forms and intriguing aspectual properties:

(5N) #29 Hun pleide å legge (entropy: 2.28) en tjukk bunke [post/reklame] på kjøkkenbordet #30 før hun gikk (entropy: 2.52) opp på rommet sitt #31 og begynte (entropy: 3.09) på leksene.
(5E) [There was usually a lot of junk mail], a pile to dump on the kitchen table before she went up to her room to start her homework. (OMC)
(5R) Обычно София оставляла толстую пачку корреспонденции на кухонном столе и, поднявшись к себе в комнату, принималась за уроки. (RuN)
(5R') Counter #29 ('оставляла': 5, 'клала': 2, 'положила': 2, 'имела': 1, 'привыкла': 1, 'ложила': 1); Counter #30 ('подняться': 4, 'поднималась': 3, 'поднявшись': 1, 'пойти': 1, 'отправиться': 1, 'оставлять': 1, 'класть': 1); Counter #31 ('сесть': 2, 'начать': 2, 'делать': 2, 'принималась': 1, 'приступала': 1, 'пойти': 1, 'подняться': 1, 'начинала': 1, 'приступить': 1)

Syntactically, there are some important differences between Norwegian/English and Russian in this case. Note that the Norwegian original uses the habitual–aspectual auxiliary 'pleide – used to', which is absent in the Russian translations. Instead, we typically get an imperfective past in Russian, as 'оставляла' in (5R). As shown in (Grønn 2011), perfective aspect is not completely ruled out under habitual markers (for instance under 'бывало' or 'по привычке'). In the words of Schultzen (2021:44): «The translators opting for the perfective aspect single out a specific occurrence of an habitual action. […] As such, 'по привычке она клала...' translates to 'habitually she put…', while 'по привычке она положила…' translates to 'out of habit she put…'.»

What is particularly striking in (5R') is the distribution of finite vs. non-finite (infinitive, gerunds) verb forms. The pattern that emerges from these data is that the perfective aspect is used despite the habitual context when the verb is non-finite (#30 'подняться': 4; 'поднявшись': 1; #31 'сесть': 2, 'начать': 2; 'приступить': 1), while the imperfective past is typically preferred for finite verb forms under habitual operators (#30 'поднималась': 3, #31 'принималась': 1, 'приступала': 1, 'начинала': 1).

The use of perfective aspect with non-finite verb forms in these contexts has to my knowledge not been properly described in the literature (but see Dickey (2000) for some relevant discussion). The more expected imperfective past is consistently used in the official Ukrainian translation:

(5U) Дівчинка завжди клала чималеньку купу пошти на кухонний стіл, а тоді піднімалася до себе в кімнату і бралася до уроків. (IFSP)

For perspicuity, I provide below two of the non-professional Russian translations with non-finite perfective verb forms in combination with the imperfective past:

(5R'') Обычно София оставляла толстую пачку корреспонденции на кухонном столе и, поднявшись к себе в комнату, принималась за уроки. (RuN-IT)
(5R''') По привычке она клала толстую кипу на кухонный стол перед тем, как подняться в свою комнату и сесть за уроки. (RuN-IT)

Another topic in verb semantics which is of interest in a cross-linguistic Slavic-Germanic setting, is the use of modals. Among the 163 verbs in the dataset, the modal ‘burde’ in (6N) gets the highest possible entropy:

(6N) #97 Er det allikevel noe som burde interessere alle? (entropy: 3.59)
(6E) Is there nothing that interests us all? (OMC)
(6G) Gibt es trotzdem etwas, das alle interessieren sollte? (OMC)
(6R) А нет ли какого-нибудь предмета, который бы заинтересовал всех? (RuN)
(6R’) Counter #97 ('бы': 1, 'касающееся': 1, 'смогло': 1, 'будет': 1, 'может': 1, 'интересующее': 1, 'могло': 1, 'было': 1, 'интересовало': 1, 'вызывать': 1, 'существовать': 1, 'null_V': 1)

For sentence #97 every single string of each translator is unique. This is unsurprising, since there are no clear one-to-one correspondences between modals in Germanic and Russian (cf. Yanovich (2013), ch. 5 on deontic modals), and ‘burde’ is one of several hard nuts to crack in translation of Norwegian modals (cf. Nesset & Makarova 2016:152). We also note that the Norwegian modal is ignored in the English translation (6E) but rendered in the German one in (6G).

For reference, I also give the Ukrainian translation which is rather similar to the original Russian one in (6R):

(6U) А чи є щось таке, що зацікавило б усіх? (IFSP)

Note that in my statistics (6R) and (6U) would be treated differently due to the order of ‘by’/‘b’ with respect to the finite verb. Furthermore, it is not obvious that the subjunctive particle ‘by’/‘b’ should be tagged as a VERB, but this choice by Stanza makes sense here with a Norwegian modal verb in the original. From a difficult modal, I turn to a simple indicative sentence:

(7N) #112 Hva er viktigst i livet? (entropy: 0.92)
(7E) What is the most important thing in life? (OMC)
(7R) Что важнее всего в жизни? (RuN)
(7R’) Counter #112 ('null_V': 8, 'является': 4)

The translator into Russian is effectively left with two options. The example shows that I need a null verb category in the counter. In the next example, the follow-up to the question in (7N), the verb entropy is even lower:

(8N) #113 Hvis vi spør (entropy: 0.82) en som lever på sultegrensen, er svaret mat.
(8E) If we ask someone living on the edge of starvation, the answer is food. (OMC)
(8G) Wenn wir jemanden in einem Land mit Hungersnot fragen, dann lautet die Antwort: Essen. (OMC)
(8R) Если мы спросим об этом у человека, живущего на грани голода, он ответит: еда. (RuN)
(8R’) Counter #113 ('спросим': 10, 'зададим': 1, 'Спроси': 1)

The very low entropy of ‘spør’ in #113 reflects the clear dominance of 'спросим'; the two other candidates are mere outliers. Interestingly, all 12 translators use a perfective

verb (future or imperative), whereas the Norwegian original has a present tense in the antecedent of a conditional. This is a non-trivial observation, and it confirms a more general difference between Germanic languages (Norwegian, English, German) and Slavic languages (Russian, Ukrainian) in the use of present vs. future in adjunct clauses (cf. Grønn & von Stechow 2011).

The Slavic pattern with a future in the adjunct is also attested in the Ukrainian translation:

(8U) Якщо ми запитаємо людину, яка помирає з голоду, вона відповість — хліб, (IFSP)

This pattern is once more confirmed in the *if*-adjunct in #116:

(9N) #116 Hvis vi retter (entropy: 2.05) det samme spørsmålet til en som fryser, er svaret varme.
(9E) If we ask someone dying of cold, the answer is warmth. (OMC)
(9G) Wenn wir dieselbe Frage an einen Frierenden stellen, dann ist die Antwort: Wärme. (OMC)
(9R) Если мы обратимся с тем же вопросом к замерзающему, он скажет: тепло. (RuN)
(9U) якщо ми звернемося з таким запитанням до того, хто замерзає, відповідь буде — тепло. (IFSP)
(9R') Counter #116 ('зададим': 5, 'обратимся': 3, 'адресуем': 2, 'Обратимся': 1, 'Спроси': 1)

The entropy is much higher for #116 than #113 because of the wide choice of lexical verbs in the counter. However, the important point for us is that all the verb forms are perfective (11 future; 1 imperative), while the Germanic versions are all in the present tense. The Russian verb 'адресуем' is biaspectual but must here be interpreted as perfective in analogy with the other forms in the dataset.

In the next example, the three first verbs all have high entropy and pose interesting problems for the translators:

(10N) #145 Den som interesserer seg for slike spørsmål (entropy: 3.02), #146 er opptatt av noe (entropy: 3.42) #147 som mennesker har diskutert (entropy: 3.02) så lenge vi har levd på denne planeten.
(10E) People who ask such questions are taking part in a debate that has gone on as long as man has lived on this planet. (OMC)
(10G) Wer sich für solche Fragen interessiert, beschäftigt sich mit etwas, das die Menschen schon fast so lange diskutieren, wie wir auf diesem Planeten leben. (OMC)
(10R) Люди обсуждают подобные проблемы столько тысячелетий, сколько населяют нашу планету. (RuN)
(10U) І хто цікавиться цим питанням, приєднується до мільйонів тих, хто добирав способу до його розв'язання, відколи людство існує на цій планеті. (IFSP)
(10R') Counter #145 ('интересуется': 3, 'обсуждают': 2, 'Интересующегося': 1, 'стали': 1, 'бьются': 1, 'ставит': 1, 'занимают': 1, 'задаётся': 1, 'задаёт': 1); Counter #146 ('занимается': 2, 'населяют': 1, 'занимает': 1, 'интересовать': 1,

'озабочен': 1, 'существуют': 1, 'интересуется': 1, 'заинтересован': 1, 'занят': 1, 'обеспокоен': 1, 'null_V': 1); Counter #147 ('null_V': 3, 'обсуждают': 2, 'обсуждали': 1, 'увлекались': 1, 'тревожит': 1, 'спорили': 1, 'Волнуют': 1, 'обсуждается': 1, 'обсуждало': 1)

The official Russian translation in (10R) is a simplification compared to many of the other 11 Russian translations in (10R') and compared to (10U). What is of particular interest in (10N) is the switch from the present tense in #145 and #146 to the universal perfect ('har diskutert' 'a debate that has gone on') in #147. In (Grønn & von Stechow 2020), we discuss parallel corpus translations of the universal perfect from English to other European languages (cf. also van der Klis et. al (2022), who use multilingual narrative corpora and quantitative methods to study the competition between past and perfect in Germanic and Romance languages). The Germanic languages are not uniform here, as we see in German (10G) with an inclusive present tense ('diskutieren'). Ukrainian (10U) actually uses an experiential imperfective past 'добирав' in combination with an inclusive present 'існує'. Several of the Russian translations use present tense forms such as 'обсуждают' or 'обсуждается', in accordance with the findings of (Grønn & von Stechow 2020) and a rule proposed in (Nesset & Makarova 2016), to which I return in (12N) below.

In the discussion of (5) above, we encountered 'unexpected' perfective infinitives in Russian. The next example illustrates nicely how difficult the aspectual choice can be in the infinitive:

(11N) #152 Den beste måten å nærme seg filosofien på (entropy: 2.75), #153 er å stille noen filosofiske spørsmål (entropy: 2.45): Hvordan er verden skapt?
(11E) The best way of approaching philosophy is to ask a few philosophical questions: How was the world created? (OMC)
(11R) Входить в философию лучше всего постановкой философских вопросов. Как устроен мир? (RuN)
(11U) Найкращий спосіб наблизитися до розуміння філософії — це поставити кілька філософських питань: Як створено світ? (IFSP)
(11R') Counter #152 ('приблизиться': 4, 'быть': 2, 'Входить': 1, 'подойти': 1, 'сблизиться': 1, 'постичь': 1, 'познакомиться': 1, 'задать': 1); Counter #153 ('задать': 5, 'поставить': 2, 'устроен': 1, 'ответить': 1, 'ставить': 1, 'создан': 1, 'задавать': 1)

The entropies for both Norwegian infinitive verbs are high, and the results are rather unclear, also when it comes to aspect. The official Russian translation uses an imperfective infinitive 'Входить', while (11U) makes use of two perfective infinitives. Overall, the counter in (11R') shows a preference for perfective infinitives also in the Russian non-professional translations.

(12N) #163 Spørsmål som disse har vært stilt av mennesker til alle tider. (entropy: 2.45)
(12E) People have been asking these questions throughout the ages. (OMC)
(12G) Solche Fragen haben die Menschen zu allen Zeiten gestellt. (OMC)

(12R) Такие вопросы задавались людьми каждой эпохи. (RuN)
(12R’) Counter #163 ('задавались': 5, 'задавали': 2, 'ставили': 1, 'интересовались': 1, 'занимали': 1, 'волновали': 1, 'интересовали': 1)

The final sentence of the excerpt contains a present perfect in the Norwegian original. Apparently, ‘har vært stilt’ in (12N) is a universal perfect, which is used to denote situations that obtain both in the past and at the utterance time. For this reading of the perfect, Nesset & Makarova (2016:55) formulate the so-called “Perfektumregelen”, a pedagogical rule which says that you should always translate a universal perfect in Norwegian into present tense in Russian. This rule is widely used in the teaching of Russian grammar at Norwegian universities, but the rule is seriously challenged by the data in (12R’): Not a single translator uses the present tense!

Perhaps one could argue that (12N) has a flair of both the universal perfect and the so-called experiential perfect. In a similar case above (10N/10R’), we encountered both present tense and imperfective past in the translations. For some reason, all the Russian translations in (12R’) have a past imperfective, which is the preferred choice for the translation of experiential perfects, as noted in both Nesset & Makarova (2016) and Grønn & von Stechow (2020).

4. Conclusion

By analysing multiple Russian translations from a quantitative perspective with verb entropy, I have identified some new patterns and questioned some established wisdom in the TAM domain of contrastive Germanic–Slavic studies. We can sum up the discussion of the selected sentences above from lowest to highest verb entropy as in figure 1.

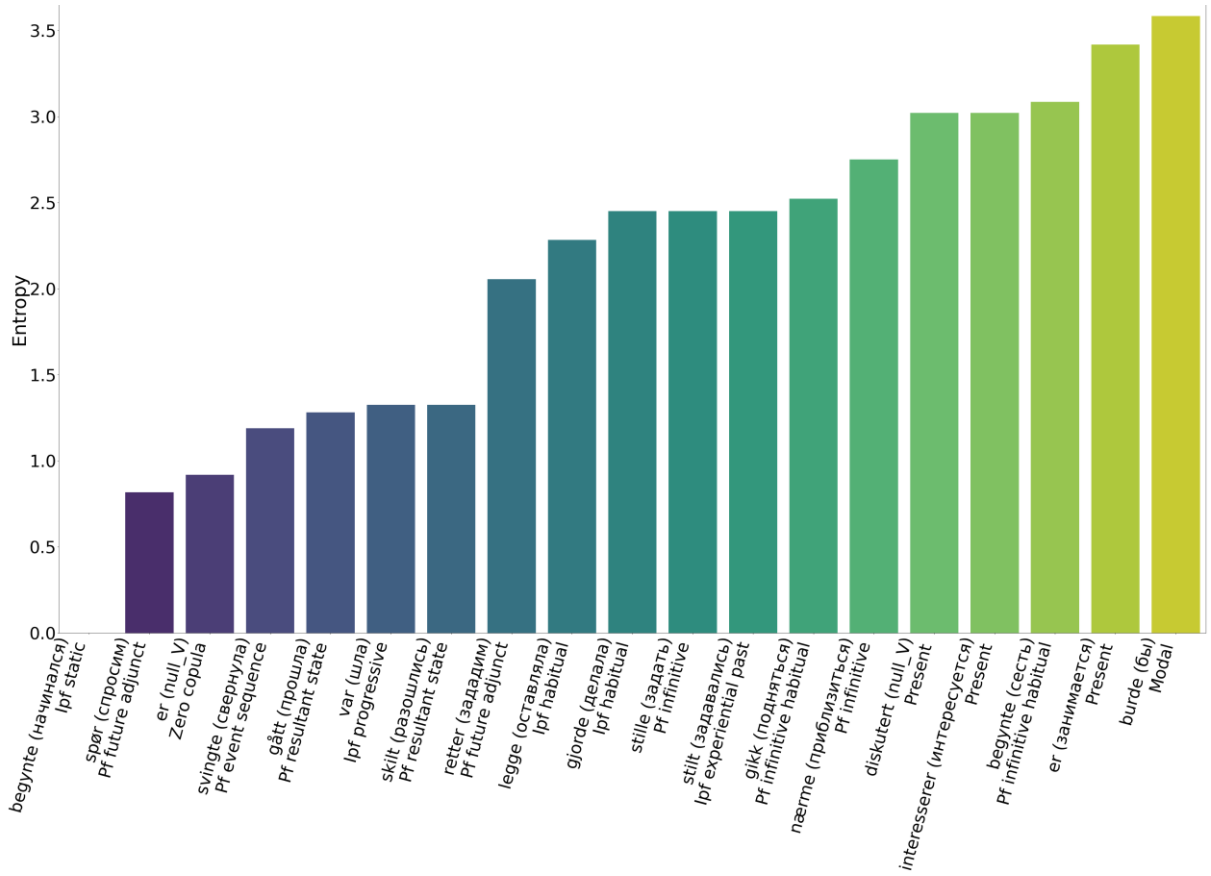


Figure 1. Entropy of Norwegian verbs given Russian translations.

In particular, the RuN-IT data highlight two phenomena: (i) the use of perfective aspect with non-finite verb forms under habitual marking (#30–#31, #152–#153), and (ii) the use of the imperfective past in contexts where the Norwegian original has a universal perfect (#163), challenging the so-called *Perfektumregelen* (Nesset & Makarova 2016).

Low entropy means that there is a clear preference for a specific Russian translation. However, low entropy does not automatically imply that the choice is trivial for L3/L4 learners. For instance, choosing 'спросим' in #113 or 'начинался' in #18 is presumably not obvious for Norwegian learners, despite the low verb entropy of the Norwegian originals.

The empirical base for this study is deliberately narrow: a single excerpt from one novel by one author. As such, the entropy values and TAM patterns documented here are not intended to generalize directly to other genres or registers. Rather, they demonstrate the potential of multi-translation data; systematic comparison across additional texts is left for future research.

This pilot study was explicitly «fishing for results». In the discussion I have focused on phenomena that have received some attention in previous studies using parallel corpora (e.g., RuN; Parasol (von Waldenfels 2012) etc.), but I did not test specific hypotheses, and the statistics are based on only moderately accurate tagging by the

Stanza library in Python. Future work should compute entropy over features rather than over surface forms and should test specific TAM-hypotheses on larger multi-retranslation corpora.

The multi-translation data in RuN-IT was sampled before the AI-revolution, which adds to its value since pure human data can be hard to obtain these days outside of strictly experimental environments. Human translations are expensive. Thus, in machine learning research, one rarely uses more than four human translations of the same text (Victoria Li Fossum, p.c.).

Jostein Gaarder's novel *Sofies Verden* is a case where authentic fiction can serve pedagogical purposes in translation practice (at, say, B1-level). The 163 verbs analysed here are usually presented to students in chunks of four. In the spirit of Ilya Frank's method for foreign language teaching (Mammadova & Belyaeva 2020) and *the Russian Constructicon* (Bast et al. 2021), there is added value in using authentic texts even in classroom settings.

For L3/L4 learners, the key pedagogical payoff of verb entropy is that it highlights zones of systematic variation (e.g. modals, perfects, non-finite forms) where it is didactically useful to present learners with multiple acceptable Russian solutions instead of a single "correct" translation. In addition, there are some non-trivial cases where we can actually point to a unique "correct" translation, notably concerning aspectual choice with stative descriptions (Ipf) vs. dynamic events (Pf).

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Peer-reviewed article

Valency patterns across Slavic: insights from a token-based cross-linguistic perspective

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Abstract

A token-based typological perspective sheds new light on the comparative study of valency class systems in ten modern Slavic languages. Using Universal Dependencies (UD) treebanks, the analysis addresses two issues: cross-linguistic differences in valency class system complexity and the relationship between type and token frequencies of argument-coding devices such as cases and adpositions. Quantitative measures based on transitivity prominence and entropy reveal systematic intra-Slavic variation. Languages of the northern Slavic area (Russian, Ukrainian, Polish, Czech) show higher valency class complexity than South Slavic languages, despite their close genealogical relationship. Complexity metrics based on UD treebanks largely converge with questionnaire-based results from the BivalTyp database, supporting the methodological validity of the approach. Type and token frequencies of individual argument-coding devices are shown to diverge in systematic ways. Cases and case-preposition combinations associated with semantically more homogeneous verb sets and more tangible semantic roles tend to display higher token frequencies relative to their type frequencies. These findings highlight the added value of token-based evidence for understanding the structure and variation of valency class systems.[1]

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1. Introduction

This paper is situated at the intersection of three research domains: (i) verb valency classes, (ii) microtypological approaches to Slavic languages, and (iii) token-based typological research. While each of these areas has produced substantial results, and their pairwise combinations are well represented in the literature, their joint integration remains underexplored. The present study addresses this gap by outlining directions in which the use of token-based data can provide new insights into the organization of valency class systems in Slavic, including both shared properties and internal variation.

The paper is structured as follows. Section 2 reviews the relevant state of the art and introduces the working definitions adopted in the study. Sections 3 and 4 describe the data and methods, largely building on previous research. Section 5 presents the main empirical findings, and Section 6 offers a brief summary.

2. Background and goals

Valency has played a central role in empirical and theoretical linguistics for decades, addressing how verbs and other predicates interact with their arguments, including issues such as alignment, grammatical relations, voice, and semantic roles (Comrie 1981; Dixon 2010: 115–158; Fillmore 1968, Lazard 1994). A particularly challenging issue concerns the relation between argument structure as part of grammatical organization and the (verbal) lexicon. Ongoing debates range from projectionist approaches, in which individual lexical verbs project verb-specific argument patterns (Levin & Rappaport Hovav 2005), to constructional approaches, where argument structure constructions are endowed with their own meaning and accommodate overlapping verb classes on the basis of general principles of semantic compatibility (Goldberg 1995; also see Janda 1993: 25–40 for an insightful overview of possible approaches).

Regardless of theoretical differences, there is broad empirical agreement that languages organize verbs into valency classes, understood as sets of verbs sharing the same argument-structural properties (Levin 1993). This paper adopts a narrow definition of valency class, focusing on argument coding and abstracting away from deeper aspects of argument-related syntax, such as participation in valency alternations or processes like reflexivization. The valency of a verb is thus defined as "the list of its arguments with their coding properties" (Malchukov et al. 2015: 30).

By way of illustration, the examples (1)–(2) below instantiate the same valency pattern, that is, the same combination of argument-coding devices: i) nominative case with verbal indexing for the first argument and ii) the preposition *na* 'on' with accusative case for the second argument. Consequently, the Serbian verbs used in these examples

belong to the same valency class, even though the same lexical items may occur with different valency patterns elsewhere.

Serbian

(1) *Petar* *liči* *na* *Marij-u*
PN.NOM.SG resemble.PRS.3SG on PN-ACC.SG
'Petar resembles Maria.' (BivalTyp[2])

(2) *Petar* *se* *ljuti* *na* *Marij-u*
PN.NOM.SG REFL make_angry.PRS.3SG on PN-ACC.SG
'Petar is angry with Maria.' (BivalTyp)

Compared to topics such as alignment, valence orientation, or voice, typological research on valency classes remains relatively limited. One likely reason is the absence of a clear *tertium comparationis*: valency classes are identified on the basis of argument-coding devices such as cases, adpositions, and verbal indexes, which cannot be straightforwardly equated across languages (Haspelmath 2009: 510; Haspelmath, Hartmann 2015). As a result, the empirical study of valency classes has largely been confined to language-specific research.

Slavic languages are no exception in this respect. A substantial body of empirically rich work addresses valency classes in individual Slavic languages, including theoretically informed studies with fine-grained semantic analyses, as well as dictionaries and databases of various kinds (see Apresjan, Páll 1982; Apresjan 2014-; Janda, Clancy 2002; Lopatková et al. 2016; Lyashevskaya, Kashkin 2015; Preradovic et al. 2009; Przepiórkowski et al. 2014; Žele 2008; Zolotova 2006).

A recurrent empirical finding in research on valency classes is that they are at least partly semantically motivated: verbs grouped within a given class tend to share aspects of meaning, and conversely, semantic similarity often correlates with shared valency patterns (Apresjan 1965: 51; Clancy 2006; Lazard 1994: 133; Levin 1993: 1–10; Malchukov 2005). In its most general form, this observation aligns with the broader isomorphism hypothesis, according to which recurrent similarities in form correspond to similarities in meaning (Cysouw 2014). However, this relationship does not fully predict the valency behavior of individual verbs. This becomes evident from the fact that languages organize verbs into valency classes in different ways, sometimes even between very closely related languages, such as Slavic languages (Clancy 2006; Janda 1993; 2002).

By way of illustration, the equivalents of (1)–(2) in Czech display distinct valency patterns (*podobat se* 'resemble' takes a dative object, whereas *zlobit se* 'be angry' requires preposition *na* 'on' and the accusative case, as in the Serbian counterpart). Such variation motivates a cross-linguistic perspective on valency class systems and raises questions such as which properties of these systems are cross-linguistically recurrent

[2] All examples are taken either from the BivalTyp database or from the UD platform and are marked accordingly; see Section 3 for more details on the data.

and which are highly language-specific, and whether observed differences align with genealogical, areal, or structural factors. A growing body of research addresses these issues (Malchukov, Comrie 2015; Bickel et al. 2014; Say 2014), including contrastive studies on Slavic data (Clancy 2006; Janda 2002) and at least two recent studies aimed at the analysis of the whole Slavic genus (Seržant et al. 2022; Say 2025a).

However, this body of work largely adopts a type-based approach, in which the primary datapoints are lexical verbs or constructions treated as abstract types. While such studies have yielded important insights, including systematic cross-linguistic differences, they are necessarily reductionist in that they abstract away from usage-based properties of language, such as variability, contextual effects, and frequency. In response, an emerging strand of research—*token-based typology*—aims to compare languages on the basis of tokens, understood as individual instances of linguistic forms attested in texts, typically analyzed using corpora of various kinds. An emphasis on actual usage, enriched with multi-layered contextual information and frequency distributions, has played a central role in cognitively oriented, corpus-based studies of Russian, most prominently in the work of Tore Nesset (Nesset 2019; Nesset & Janda 2023), including research on case usage (Nesset 2004; Nesset & Kuznetsova 2015).

Recent years have seen substantial advances in token-based typology (Levshina 2022; Schnell et al. 2021), including in the study of Slavic languages (Bauer 2021; Ovsjannikova 2025; von Waldenfels 2012).

Despite these recent developments, valency classes in Slavic languages remain poorly studied from a comparative, token-based perspective. This paper aims to initiate such a research programme by highlighting a few specific questions and complementing existing type-based results reported in, e.g., Seržant et al. (2022) and Say (2025a). More broadly, the goal is to apply quantitative methods to token-based data from Slavic languages and to compare the findings with results obtained from type-based approaches, focusing on both similarities and differences among Slavic languages.

More specifically, this study addresses two empirical questions: (i) Are there systematic differences in the complexity of valency class systems across Slavic languages? (ii) Are there recurrent patterns in the type and token frequencies of individual valency classes, particularly regarding differences between type- and token-based distributions? To answer these questions, data from the UD treebanks are employed and compared with type-based data from BivalTyp (Section 3), and analyzed using quantitative methods (Section 4).

3. Data

The main data source is **Universal Dependencies** (UD), a large cross-linguistic collection of syntactically annotated treebanks (Nivre et al. 2020; Zeman et al. 2023). With coverage of over 150 languages, naturalistic texts, and consistent annotation, UD

is well suited for token-based typological research. However, treebanks vary in size and genre, and the sample is biased toward languages with established literary traditions. This bias is less relevant here, as standard Slavic languages are well represented. This study uses data from ten Slavic languages (see Table A1 in the Appendix) as represented in the UD treebanks in October 2024.[3]

Data processing proceeded in two steps. First, I extracted all dependents of finite verbs annotated as "obj" (direct object), "iobj" (indirect object), or "obl" (oblique object).[4] The datasets also included additional grammatical annotations extracted from UD, such as linear position relative to the main verb, part of speech, verb lemma, and morphological case.[5]

Second, because UD does not directly annotate argument-coding devices, I used a semi-automated procedure to identify them. In Slavic languages, these usually involve a morphological case or a morphological case combined with an adposition. For example, the coding devices for the three raw entries from the Russian sentence in (3) were coded as "posleGEN," "DAT," and "oLOC."

(3) *Posle* *ėt-ogo* *ljud-i* *rasskazyva-l-i* *zal-u* *o*
after this-GEN people-NOM.PL tell.IPFV-PST-PL audience-DAT.SG about
rezul'tat-ax
result-LOC.PL
'After that, people told the audience about the results.' (UD)

This yielded ten language-specific datasets (see Table A1 in the Appendix for a quantitative overview). A major limitation of UD data is that it does not differentiate between arguments and adjuncts, as already seen in example (3), where *zalu* 'to the audience' and *o rezul'tatax* 'about the results' are arguments of *rasskazyvat'* 'tell', whereas the third dependent, *posle ėtogo* 'after this', is an adjunct.[6] However, for studying verb-specific valency patterns in a cross-linguistic perspective, arguments are more relevant than adjuncts.

To separate arguments from adjuncts, I applied an automated argumenthood script developed for Russian (Say & Seržant 2025) and extended it to all ten languages. A dependent is classified as an argument if its coding device occurs significantly more often with a given verb than on average (cf. Korhonen et al. 2000). For example, **DAT**

[3] The Macedonian treebank, containing 1,360 tokens, is too small for meaningful analysis of lexical valency patterns.
[4] The algorithm excludes subjects to avoid inflating datasets, as Slavic nominative subjects show little variation beyond the overt versus zero NP distinction, which could hinder cross-dataset comparison.
[5] The **extracting algorithm** was implemented in Python. I thank Ivan Seržants for writing the script.
[6] UD documentation explicitly notes that the argument/adjunct distinction is subtle, often debated, and best omitted, whereas the core–oblique distinction is clearer and more cross-linguistically applicable (https://universaldependencies.org/u/overview/syntax.html; retrieved December 20, 2025). The UD distinction between direct objects, indirect objects, and obliques relies on the formal properties of coding devices and is only tangentially related to argumenthood.

and **oLOC** co-occur with *rasskazyvat'* 'tell' more frequently than expected and are tagged as arguments, whereas **posleGEN** is not and is treated as an adjunct.

For Russian, the algorithm achieves approximately 0.83 precision, based on manual comparison with *The Active Dictionary* (Apresjan, ed., 2014–) as a gold standard. Say and Seržant (2025) discuss its advantages and limitations, distinguishing false positives (dependents identified as arguments but not listed in the dictionary) and false negatives (the reverse).

In the Russian data, false positives are rare and typically arise in special contexts, for example when a coding form can express multiple meanings with the same verb. There is no reason to expect them to be more frequent in other languages. False negatives, however, are more common and usually result from data sparsity: with rarer verbs, combinations with particular coding devices may simply not occur often enough to reach statistical significance. The algorithm's precision is therefore likely comparable to the Russian benchmark in languages with larger datasets (e.g. Czech), but lower in languages with smaller ones (e.g. Slovak).[7]

Despite these limitations, the algorithmically assigned argumenthood labels were retained in the analysis for three reasons. First, imperfect precision mainly reflects false negatives, meaning that dependents identified as arguments are likely to be genuine arguments even if some argument types remain undetected. Second, no better practical alternative is available: despite its imperfections, the script allows many adjuncts to be filtered out without manual annotation of thousands of examples across ten languages. Third, some calculations rely on the full dataset without distinguishing arguments from adjuncts (see Table 1 and the accompanying footnote).

In addition to UD, parts of the analysis use **BivalTyp** (Say 2020–), a cross-linguistic database of bivalent verbs based on 130 questionnaire sentences, covering 149 languages as of October 2025. See Nikolaev and Say (n.d.) for the general database design and Say (2025a) for a detailed analysis of the Slavic data in BivalTyp. I used the same ten Slavic languages as in UD. BivalTyp's advantage is that entries are semantically aligned across languages and valency patterns are explicitly coded, unlike in UD. Its limitations include non-naturalistic examples, a focus on bivalent patterns, and a somewhat arbitrary questionnaire design that does not reflect actual usage frequencies. Comparing results from UD and BivalTyp allows assessment of these complementary strengths and weaknesses.

The data used in this study—including the UD-based datasets for the ten languages with argumenthood annotations, as well as spreadsheets representing the latest

[7] I have not obtained precision estimates for languages other than Russian for practical reasons. Producing such estimates would require (i) a dictionary comparable in coverage and accuracy to *The Active Dictionary* (Apresjan, ed., 2014–) for Russian and (ii) an expert with native or near-native command of the target language willing to check hundreds or thousands of corpus examples against detailed lexicographic descriptions. At the time of writing, these conditions were not met for any other Slavic language. Moreover, direct comparison of precision across languages would be problematic even with such annotations, as language-specific lexicographic practices differ, undermining the idea of a cross-linguistically valid "gold standard".

development version of the BivalTyp database—are available in a GitHub repository at https://github.com/serjozhka/Slavic_valency_Slovo.

4. Methods

As noted in Section 2, this study addresses two issues: (i) the complexity of valency class systems and (ii) the relationship between type and token frequencies of individual valency classes. These concerns determined the choice of quantitative methods.

Studying complexity at different levels of linguistic systems is a major topic in linguistics, including typology (Miestamo et al. 2008; Shcherbakova et al. 2023). The key idea in analyzing valency class complexity is that more complex systems make finer distinctions between verbs in their valency patterns. I use two metrics to quantify this complexity: **transitivity prominence** and **Shannon's entropy** (see Say, 2025b, for the same idea applied to type-based data).

Transitive patterns are commonly treated as the default for bivalent verbs. Canonical transitivity involves an action verb with a volitional agent and a highly affected patient (Tsunoda 1985; Malchukov & Comrie 2015; Næss 2007), while many other bivalent verbs (e.g., *like, follow, kiss*) may appear morphosyntactically transitive or intransitive depending on the language. **Transitivity prominence** is calculated as the ratio of transitive patterns to total patterns in a dataset (Creissels 2018; Haspelmath 2015). In this study, a clause is considered transitive if its two arguments correspond to the 'killer' and 'victim' micro-roles of the *kill* verb (see Haspelmath 2015: 136 for a similar approach).

In Slavic languages with morphological case, this corresponds to a nominative–accusative pattern. In UD data, transitivity prominence was calculated as the ratio of clauses containing an accusative argument to the total number of clauses.[8] Although this does not fully reflect corpus frequencies—for example, the extracting script simply ignores clauses without any non-subject arguments—the identical extraction procedure ensures comparability of obtained metrics across language-specific UD-based datasets. In BivalTyp, transitivity prominence is simply the proportion of transitive entries among the 130 entries obtained for each language. Again, while absolute scores are shaped by the questionnaire design, cross-linguistic comparisons remain meaningful.

Transitivity prominence is **inversely** correlated with valency system complexity: lower prominence indicates finer distinctions between verb classes (Drossard 1991: 435–436; Haspelmath 2015; Lazard 1994: 61–63). However, it is a coarse metric, capturing only the contrast between default transitive and other patterns, without distinguishing among non-transitive patterns (e.g., use of multiple adpositions for argument coding). To address this, I employ **Shannon's entropy** (see Ackerman,

[8] In Bulgarian—the only language in my Slavic sample without morphological case—the transitive pattern involves a canonical subject and either an unflagged nominal argument, an accusative clitic, or both.

Malouf 2013; Juola 2008; Levshina 2019 for the general idea and Say, 2014; 2025b for its application to valency class systems research), which measures the information content of a discrete variable.

For UD data, the discrete variable is the argument-coding device (e.g. the dative case, annotated as "DAT", or *na* + accusative, "naACC"); datasets with a more scattered distribution of observations across coding devices have higher entropy. For BivalTyp, the discrete variable is the observed bivalent valency pattern.[9] UD is token-based, BivalTyp is type-based, and UD considers coding devices associated with individual arguments (e.g., "naACC") while BivalTyp considers whole valency patterns (e.g. "NOM_naACC"). Despite these differences, entropy captures the degree of complexity in argument-coding distributions in both datasets.

In addition to these holistic metrics, I applied standard frequency analyses to UD data to examine specific coding devices. **Type frequency** measures the number of different verbs using a given coding device (e.g. "naACC"), while **token frequency** counts the number of occurrences of that device in the treebank-based dataset.

5. Results

5.1. Complexity

As discussed in Section 4, valency class system complexity is assessed using two metrics**: transitivity prominence** and **entropy**.

Transitivity prominence calculated from UD data ranges from 0.39 in Polish (lower values indicate higher complexity) to 0.56 in Bulgarian. Scores derived from UD treebanks show a similar distribution, ranging from 0.41 (Polish) to 0.52 (Bulgarian). Results for the ten Slavic languages are presented together with entropy values in Table 1.

As shown in Table 1, transitivity prominence scores in BivalTyp and UD are significantly correlated (Pearson's $r = 0.66$, $p = 0.040$). These correlations indicate that both UD and BivalTyp capture broadly similar patterns of valency class complexity across Slavic languages. This relationship is additionally visualized in Fig. 1, which also reflects corpus sizes. The potential role of corpus size in the reliability of the results is discussed below.

[9] In the case of BivalTyp, an additional correction was applied using a random subsampling technique to address the problem of unequal numbers of non-missing data points across languages (see Say, 2025b, for a detailed discussion of this method).

	transitivity prominence		entropy	
language	UD	BivalTyp	UD[10]	BivalTyp
Russian	0.41	0.42	2.68	2.23
Belarusian	0.46	0.43	2.56	2.16
Ukrainian	0.42	0.44	2.7	2.17
Polish	0.39	0.41	2.71	2.17
Czech	0.42	0.45	2.72	2.16
Slovak	0.55	0.48	2.36	2.03
Slovenian	0.45	0.50	2.56	1.94
Croatian	0.45	0.49	2.62	2.04
Serbian	0.43	0.5	2.62	1.97
Bulgarian	0.56	0.52	2.12	1.61

Table 1. Transitivity prominence and entropy in UD and BivalTyp

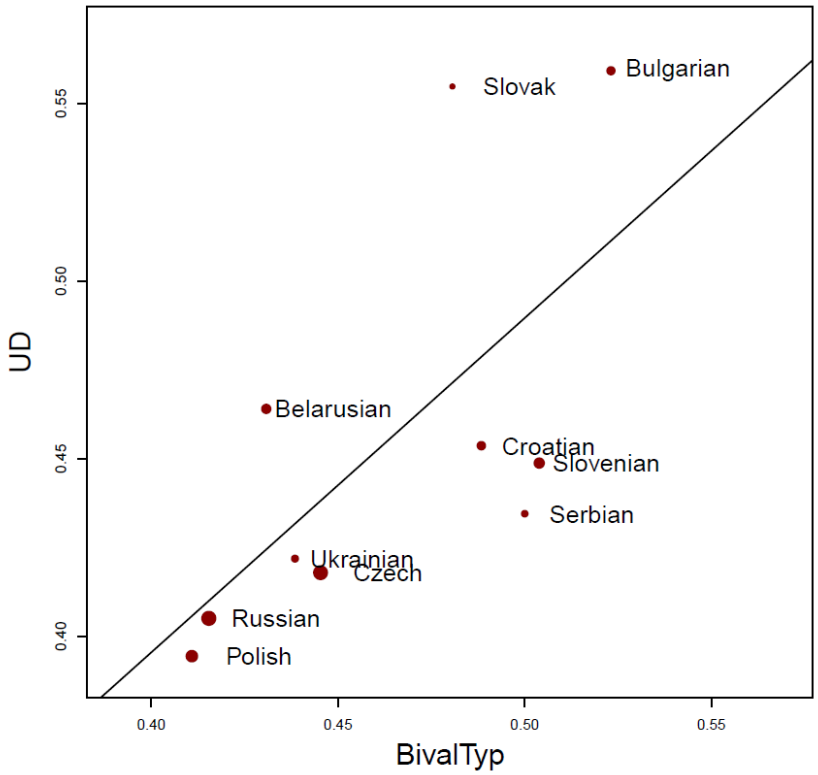


Figure 1. Transitivity prominence in UD and BivalTyp; point size reflects corpus size

Figure 1 visualizes the strong similarity between transitivity prominence values in the two datasets already reported numerically in Table 1, confirming the validity of the observed cross-linguistic differences.

Entropy values show a systematic numerical mismatch across datasets. In UD, entropy ranges from 2.12 (Bulgarian) to 2.72 (Czech), whereas BivalTyp yields substantially lower values, from 1.61 (Bulgarian) to 2.23 (Russian). This discrepancy is expected: BivalTyp is limited to at most 130 observations and necessarily

[10] These scores are based on all non-subject dependents.

underrepresents rarer argument-coding patterns that contribute to overall entropy in UD. Nevertheless, the correlation between entropy scores is even stronger than for transitivity prominence and highly significant (Pearson's $r = 0.86$, $p = 0.0015$).

Methodologically, these strong correlations support the validity of the approach adopted here. While the usefulness of UD treebanks based on large amounts of naturalistic data is well established, the status of BivalTyp is less straightforward, given its reliance on elicited data, its limited size, and its restriction to bivalent verbs. However, cross-validation against UD confirms that BivalTyp captures broadly the same patterns of intragenealogical variation in valency class system complexity within Slavic.

One potential concern is the large variation in the size of UD-based datasets. To assess its impact, I performed a subsampling procedure, creating random subsamples of 4,732 observations for each of the ten languages (the size of the smallest dataset, Slovak). The entropy values calculated from these subsamples were very close to those based on the full datasets: in no case did the difference exceed 0.03. Importantly, the differences were sometimes positive and sometimes negative, suggesting that variation in corpus size is unlikely to systematically bias the entropy estimates. That said, corpus size may still affect some of the results obtained in an indirect way, since smaller datasets can reduce the accuracy of the frequency-based argumenthood algorithm, as discussed in Section 3. Possible calibration techniques addressing this issue remain to be explored.

Empirically, the results shown in Table 1 reinforce a clear north-to-south cline. North Slavic languages (Russian, Ukrainian, Polish, Czech) consistently display higher complexity than South Slavic languages (Slovenian, Croatian, Serbian, and especially Bulgarian), a pattern previously observed in BivalTyp (Say 2025a; see also Seržant et al. 2022 based on an unrelated dataset) and now corroborated by UD data.

Although non-Slavic comparisons are beyond the scope of this paper, two brief observations are in order. First, in a broader typological perspective, all Slavic languages exhibit moderate to high valency class complexity, forming part of a wider Eastern European areal concentration of complexity.[11] Second, based on BivalTyp data, the internal Slavic north-to-south gradient mirrors a larger areal trend extending beyond Slavic, from more complex systems in Baltic and Finnic to simpler systems in Southern Europe, including the Balkans (Say 2014: 136–137).

Within Slavic, several finer-grained factors nuance this cline. High complexity in Russian, Ukrainian, Polish, and Czech is largely driven by extensive use of oblique-case objects. While the frequency of dative dependents remains relatively stable across case-

[11] This claim was previously made by Bossong (1998), Lazard (1994: 63), and Haspelmath (2015: 139–142), confirmed on the basis of BivalTyp data in Say (2014; 2025b), and is now further supported by UD-based evidence. In UD, Slavic languages show complexity profiles comparable to those of several Central and Eastern European languages (German, Lithuanian, Finnish) and clearly exceed those of languages from other parts of Europe (French, Basque) and beyond (Turkish, Bambara), see Seržant & Say (2024).

marking Slavic languages (7–11% of clauses in UD), prepositionless genitive and instrumental objects are distributed unevenly, as shown in Table 2.

	ACC		DAT		INS		GEN		total
	N	%	N	%	N	%	N	%	clauses
Russian	36374	0.41	7929	0.09	9766	0.11	1677	0.02	89797
Belarusian	7641	0.46	1182	0.07	909	0.06	823	0.05	16467
Ukrainian	3075	0.42	646	0.09	571	0.08	818	0.11	7289
Polish	14616	0.39	3305	0.09	2273	0.06	3804	0.10	37057
Czech	35981	0.42	8042	0.09	6818	0.08	3601	0.04	86094
Slovak	2031	0.55	410	0.11	143	0.04	59	0.02	3661
Slovenian	10534	0.45	2535	0.11	0	0.00	2410	0.10	23473
Croatian	5478	0.45	1202	0.10	680	0.06	1023	0.08	12075
Serbian	2712	0.43	494	0.08	296	0.05	571	0.09	6262

Table 2. Clause counts and ratios for specific case-marked dependents in Slavic UD treebanks

The data in Table 2 highlight similarities in the frequency of prepositionless dative objects and significant differences in the frequency of prepositionless instrumental and genitive objects across Slavic.

Instrumental objects show clear frequency peaks in the North; for example, several North Slavic languages regularly use instrumental objects with verbs meaning ‘smell’, as illustrated for Ukrainian in (4).

(4) *Vod-a* *u* *kyrnyc-i* <…> *pax-l-a* *rozmočen-oju* *trav-oju.*
water in well-LOC.SG smell-PST-F.SG soaked-F.INS.SG grass-INS.SG
‘The water in the well <…> smelled of soaked grass.’ (UD)

Instrumental objects in some North Slavic languages show conceptual overlap with canonical accusative objects, reflected in their passivizability (Fowler 1996; Knjazev 2007: 526) and in alternations between accusative and instrumental marking in some semantic zones, such as verbs of throwing (Nuckols 2007: 163–205).

Genitive objects are likewise unevenly distributed, with peaks in Polish, Ukrainian, and Slovenian, in line with earlier non-corpus-based studies (Pirnat 2015). Genitive marking encroaches on domains typically associated with transitivity, as manifest i) in the genitive of negation, illustrated for Polish in (5), ii) partitive objects (an areal feature of Eastern Circum-Baltic languages, Seržant 2015), iii) the passivizability of certain Russian verbs lexically governing genitive objects (Fowler 1996), and iv) and the genitive-to-accusative drift as attested in e.g. Russian (Nesset & Kuznecova 2015).[12]

(5) *żaden* *powiew* *nie porusza-ł*
none[NOM.SG.M] breath_of_wind[NOM.SG] not stir-PST[M.SG]
szklist-ego *powietrz-a*
glassy-M.GEN.SG air-GEN.SG

[12] Caseless Bulgarian and Macedonian lack prepositional patterns analogous to the genitive of negation and related constructions in other Slavic languages.

‘No breath of wind stirred the glassy air above the little meadow.’ (UD)

One particularly unexpected result is that Slovak exhibits lower valency class complexity than Czech, as reflected in lower entropy and higher transitivity prominence in both BivalTyp and UD (Table 1). The accuracy of this generalization and its possible causes require further investigation beyond the scope of this article. One possible factor is the very small size of the Slovak UD treebank, which is roughly half the size of the second smallest treebank in the sample. As discussed in Section 3, smaller datasets may indirectly bias the estimates, because the argumenthood algorithm relies on statistically significant frequency differences. As a result, fewer arguments may be detected in smaller datasets, potentially inflating the proportion of transitive constructions, whose arguments are more easily identified.

Nevertheless, several considerations suggest that the higher complexity values observed in Czech compared to Slovak may reflect a real pattern. First, the same difference is observed not only in UD but also in BivalTyp, where dataset size is not a relevant factor. Second, the difference also appears in the entropy values calculated from the UD data, for which the distinction between arguments and adjuncts was not taken into account (see footnote 10). Subsampling the Czech dataset to the size of the Slovak dataset did not eliminate the large difference in entropy values (2.74 for Czech vs. 2.36 for Slovak). Third, the present observation partly aligns with earlier findings that Slovak shows higher transitivity prominence than other West Slavic languages, partially aligning it with South Slavic languages (Seržant et al. 2022: 311). In any case, the question of whether Czech and Slovak differ systematically in this respect requires more detailed investigation.

Finally, Bulgarian emerges as the Slavic language with the least complex valency class system in both UD and BivalTyp. Although UD data are unavailable for Macedonian, BivalTyp shows that Macedonian also has a relatively simple valency class system (entropy = 1.61). This extreme position of the two East South Slavic languages is plausibly linked to the loss of nominal case morphology. Although many former case functions have been reassigned to specialized devices (e.g. pronominal clitics and prepositions such as *na* for dative and *ot/od* for instrumental functions), the overall number of available argument-coding distinctions has nevertheless decreased. In particular, contrasts based on case alternations with the same preposition (e.g. *na* + ACC vs. *na* + LOC), common elsewhere in Slavic, are no longer available, contributing to the relative simplicity of these systems.

While the detailed interaction between quantitative complexity metrics and specific morphosyntactic developments remains to be explored, the interim methodological conclusion is clear: valency class system complexity is a crucial yet underappreciated dimension of typological variation (Say 2025b), one that reveals substantial differences even among closely related languages within the Slavic group, especially when examined from a token-based perspective.

5.2. Type and token frequencies of flagging devices

This section examines the distributions of **type and token frequencies** of individual argument-coding devices in the UD-based datasets. To illustrate the approach, consider Russian prepositional phrases with *k* 'to, towards' plus dative case, exemplified in (6)–(7).

(6) *Itak, ušl-i roditel-i k djad-e Vas-e.*
so go.PST-PL parent-NOM.PL to uncle-DAT.SG PN-DAT.SG
'So, the parents went to uncle Vasya's.' (UD)

(7) *Predpolož-im, on gotovitsja k publičn-omu vystuplenij-u.*
assume-1PL he.NOM prepare.PRS.3SG to public-N.DAT.SG performance-DAT.SG
'Let us assume that he is preparing for a public performance.' (UD)

This coding device, annotated as kDAT, occurs in 3,364 clauses headed by 781 distinct verb lemmas. Of these, 150 verbs were classified as selecting *k* + DAT dependents as arguments, as with *gotovit'sja* 'prepare' in (7), *dobavit'* 'add', *napravit'* 'direct', *otnosit'sja* 'refer, belong', as opposed to adjunct uses such as in (6). As discussed in Section 4, argumenthood annotation is based on co-occurrence frequencies: *gotovit'sja* combines with kDAT significantly more often than the average verb, whereas *ujti* 'go (away)', as in (6), does not.

From this point on, only argument uses are considered. The **type frequency** of kDAT as an argument-coding device is therefore 150, and its **token frequency** is 2,417, i.e. the number of clauses in which a kDAT phrase occurs as a dependent of one of these verb lemmas. I also calculated an **argumenthood ratio**, defined as the proportion of clauses in which a given coding device is annotated as an argument; for Russian kDAT, this ratio is 0.72 (= 2,417 / 3,364).

The same procedure was applied to all language-specific coding devices. As expected, token frequency correlates strongly with type frequency: devices used with more verbs tend to account for more corpus tokens. However, the relationship is not fully straightforward, as token frequency is not directly predictable from type frequency alone. To capture this variation, I computed the **token/type ratio** (token frequency divided by type frequency), corresponding to the average number of tokens per verb type. For kDAT, this value is 16.1 (= 2,417 / 150).

Figure 2 plots type frequency against the token/type ratio for Russian argument-coding devices with type frequencies above 50; point size reflects the argumenthood ratio.

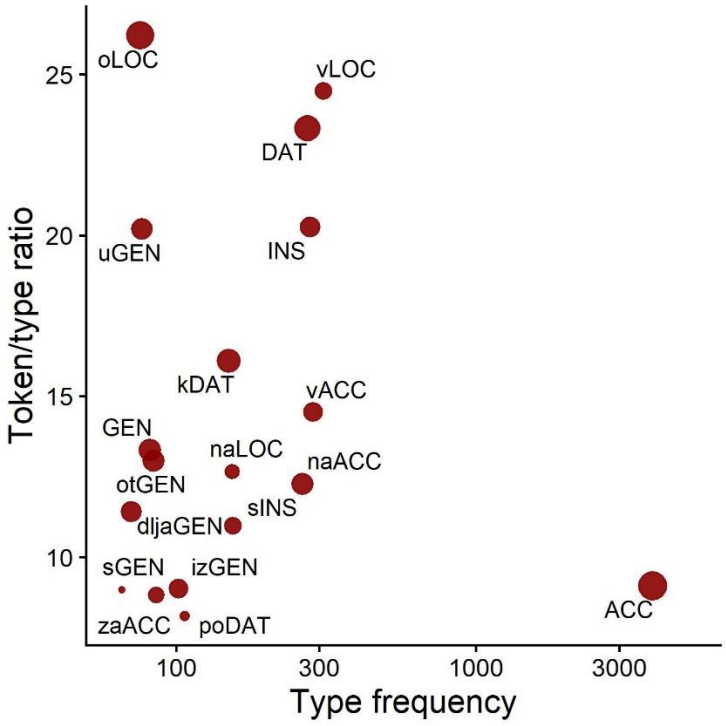


Figure 2. Type frequency and token/type ratio in Russian argument-coding devices

Figure 2 shows that argument-coding devices with comparable type frequency (i.e., the number of different verbs they co-occur with) can vary widely in the number of corpus tokens they cover. One unsurprising pattern in Fig. 2 is the exceptional behavior of the accusative case, which shows by far the highest type frequency (3,870, more than ten times that of the next device, preposition *v* 'in' plus locative case, with 310), coupled with a relatively modest token/type ratio. This reflects its role as the default object case, used with a very broad range of verbs and showing little semantic specialization.

Other devices display more complex profiles. Two illustrative cases are oLOC and zaACC. The combination of *o* 'about' with the locative (oLOC) has a low type frequency (76 verbs) but accounts for 1,992 tokens, yielding a high token/type ratio of 26 and also a high argumenthood ratio (0.91). These verbs form a semantically coherent class, consisting almost entirely of verbs of thought and speech, including high-frequency items such as *znat'* 'know', *zabyt'* 'forget', *sprašivat'* 'ask', and *govorit'* 'talk', illustrated in (8).

(8) *Poroj* *oni* *govorjat* *o* *religi-i.*
sometimes they.NOM talk.PRS.3PL about religion-LOC.SG
'Sometimes they talk about religion.' (UD)

Semantically, oLOC lacks spatial or temporal meanings and closely corresponds to an aboutness topic role, plausibly representing a case of thematic case assignment (Yip et al. 1987). It combines productively with verbs from a narrow semantic domain and rarely with others, yielding the observed quantitative profile.

A contrasting pattern is found with zaACC. Although its type frequency (86) is comparable to that of oLOC, its token/type ratio is much lower (8.8), and its argumenthood ratio is only 0.46. The verbs involved do not form a coherent semantic class but instead reflect several loosely related or idiosyncratic meanings, as in *bespokoit'sja za bezopasnost'* 'worry about safety', *golosovat' za Trampa* 'vote for Trump', *prodavat' za kopejki* 'sell for peanuts', *vypit' za družbu* 'drink to friendship', or *perevalit' za sto dollarov* 'exceed one hundred dollars'. In many cases, the semantic role of the dependent is abstract and difficult to delimit, and the choice of zaACC appears lexically determined.

These two devices thus represent opposite ends of a continuum, with many others—such as kDAT—occupying intermediate positions. Overall, Fig. 2 suggests a tentative generalization: higher token frequency per type tends to be associated with coding devices that encode more homogeneous and semantically tangible roles.

Space limitations preclude a detailed discussion of other Slavic languages, but the overall distributions are strikingly similar.[13] Figure 3 presents Czech data in the same format as Fig. 2.

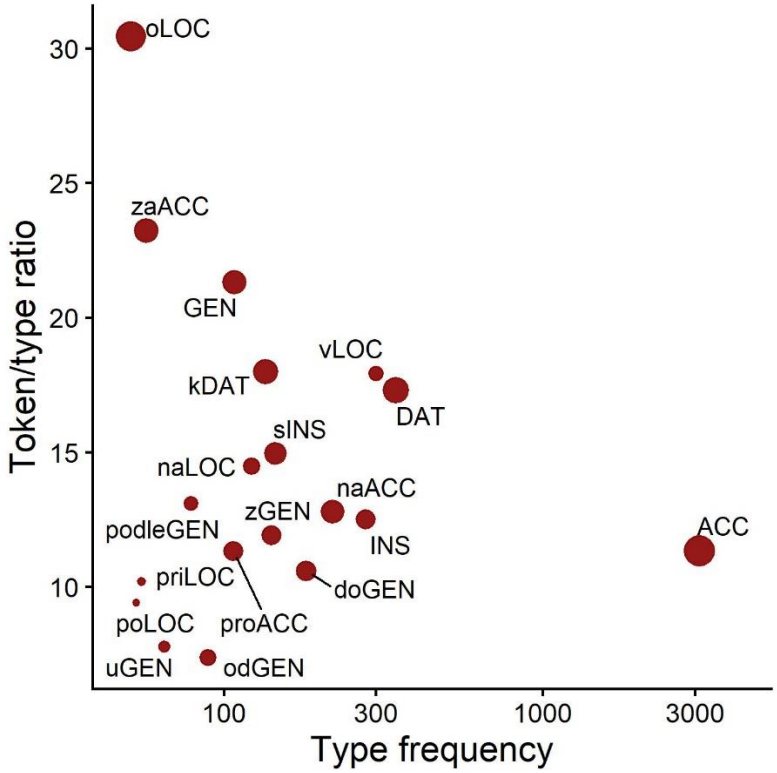


Figure 3. Type frequency and token/type ratio in Czech argument-coding devices

The overall distribution for Czech in Fig. 3 closely resembles that for Russian in Fig. 2. Moreover, many cognate devices show closely aligned quantitative profiles across

[13] The main limitation concerns smaller treebanks, where data size is sometimes insufficient to draw clear conclusions about the relationship between token and type frequencies of individual argument-coding devices.

Russian and Czech, including ACC, DAT, INS, oLOC, kDAT, naACC, and naLOC (issues of cognacy mismatches aside). Some differences are nevertheless revealing. Notably, Czech zaACC does not pattern like its Russian counterpart: although it can express similar meanings, many verbs that require zaACC in Russian select different constructions in Czech (e.g. *obávat se o bezpečnost* 'worry about safety', *hlasovat pro Trumpa* 'vote for Trump', *připít si na přátelství* 'drink to friendship', *přesáhnout sto dolarů* 'exceed one hundred dollars'). Instead, Czech zaACC is strongly associated with evaluative constructions, including those involving very frequent verbs, such as *považovat* 'consider' in (9), contributing to a high token/type ratio of Czech zaACC.

(9) *Považuj-te* *proto* *tento dopis* *za* *pokus*
consider.IMP-2PL therefore this letter[ACC.SG] for attempt[ACC.SG]
o *smír.*
at reconciliation[ACC.SG]
'Therefore, consider this letter an attempt at reconciliation.' (UD)

Despite such instructive differences, the overall stability of quantitative profiles across Slavic languages suggests that the frequency-based mechanisms underlying argument coding are relatively robust diachronically (see Nesset & Janda 2023 for discussion of the possible role of stasis in Slavic diachrony).

6. Synopsis

This article has presented a proof-of-concept exploration of what a token-based perspective can contribute to the typology of valency class systems, drawing on UD-based data from ten closely related Slavic languages. Methodologically, the main result is that token-based measures capture dimensions of variation that remain opaque in purely type-based approaches, where verb lemmas rather than discourse tokens constitute the basic units of comparison.

Empirically, the study supports earlier claims that Slavic languages differ systematically in the complexity of their valency class systems, despite their close genealogical relationship. Using quantitative metrics such as transitivity prominence and entropy, the data reveal consistent intra-Slavic variation, with higher complexity associated with languages of the northern part of the Slavic area (Russian, Ukrainian, Polish, Czech), a pattern observable in both type- and token-based data.

In addition, the analysis of individual argument-coding devices shows that type and token frequencies, while correlated, do not map onto each other in a fully straightforward way. Across Slavic languages, coding devices associated with semantically more homogeneous verb sets and more tangible semantic roles tend to exhibit higher token frequencies relative to their type frequencies. While this observation remains preliminary, it points to a promising direction for future research on the interaction between lexical semantics, frequency, and argument coding.

Appendix

languages	BivalTyp				UD					
	tr	intr	TP	entropy	size	dependents	entropy	clauses	ACC/DO	TP
Russian	54	76	0.42	2.23	1896	122551	2.68	89797	36374	0.41
Belarusian	56	74	0.43	2.16	305	23047	2.56	16467	7641	0.46
Ukrainian	57	73	0.44	2.17	122	10350	2.7	7289	3075	0.42
Polish	53	76	0.41	2.17	499	50637	2.71	37057	14616	0.39
Czech	57	71	0.45	2.16	2252	115796	2.72	86094	35981	0.42
Slovak	62	67	0.48	2.03	106	4732	2.36	3661	2031	0.55
Slovenian	65	64	0.5	1.94	343	32536	2.56	23473	10534	0.45
Croatian	63	66	0.49	2.04	199	16731	2.62	12075	5478	0.45
Serbian	64	64	0.5	1.97	97	8402	2.62	6262	2721	0.43
Bulgarian	68	62	0.52	1.61	156	14539	2.12	11327	6334	0.56

Table A1. Overview of quantitative characteristics by language. Explanation of columns. BivalTyp data: tr and intr — number of transitive and intransitive patterns among BivalTyp entries, respectively (the sum is sometimes less than 130 due to missing data); TP — transitivity prominence (the number of transitive entries divided by the total number of non-missing data points); entropy — entropy of the distribution of entries across valency classes. UD data: size — UD treebank size (in thousands of tokens); dependents — total number of dependents in the dataset; entropy — entropy of the distribution of dependents across coding devices; clauses — total number of clauses; ACC/DO — number of dependents whose coding aligns with direct objects; TP — transitivity prominence.

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Do all varieties of East Slavic have first pretonic prominence?

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The East Slavic languages Ukrainian, Belarusian and Russian have a fascinating word prosody, which has also caught Tore Nesset's attention. In his article "A FOOTnote to the Jers: The Russian Trochee-Iamb Shift and Cognitive Linguistics" (Nesset 2016), he explains the substantial changes in the prosody of the word in East Slavic following the fall and vocalization of the *jers* as a phonological change from trochaic to iambic feet, i.e. from a bisyllabic rhythmic unit with its head first to a unit with a final head. He does this in his usual clear and elegant style.

Tore is interested in the structure behind the language we produce, without losing sight of the actual language users past and present. In the usage-based model in cognitive linguistics he applies, the grammar of a language, including its phonological system, is seen as generalizations that "grow out" of actual language usage events. Following Henning Andersen, Tore points out that each generation constructs a new grammar – and phonology – based on the input of the previous generation (2016:374).

This essay is about the fascinating, complex relationship between phonology and phonetics. Like Tore, I will address the interplay between actual language usage and phonological structure, but with phonetic data. I will try to show that actual, highly variable phonetic data can give evidence for a phonological rule.

We will not discuss Tore's analysis of East Slavic word prosody (although we could: The application of metrical theory with binary feet to Russian is not unproblematic and Tore's analysis with an iambic foot is not generally accepted). Instead, we will look at first pretonic prominence in modern East Slavic, i.e. at the prominence expressed on the first, unstressed syllable of Tore's iambic foot. By *prominence* I mean that the vowel stands out in at least one of the acoustic parameters: duration, quality, loudness or tone. All modern East Slavic languages have first pretonic prominence, which is typologically uncommon: The vowel immediately preceding the stress is relatively long compared to other unstressed vowels, especially in Central Standard Russian, where the non-high

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vowels /a, o/ in this first pretonic syllable, which I will call a_{-1}, also stand out in quality (after non-palatalized consonants). The word *molokó* 'milk' is typically pronounced [məlɐ'ko], with a short *schwa* before a much longer, low vowel, which often also has prominent loudness and tone.

The prosodic word in Standard Russian thus has vowel reduction in two degrees and a strong, bisyllabic centre, or *jadro* 'nucleus', to use a Russian term, or *iambic foot*, to use Tore's. This bisyllabic centre, consisting of the first pretonic and the tonic (stressed) syllable, is opposed to a weak periphery (Kasatkina 1996).[1]

The opposition between centre and periphery has a parallel in geography: The difference between the second and first pretonic vowel is strongest in central parts of the East Slavic dialect continuum, and becomes less pronounced when moving away from the centre (Post 2025a). A recent study, based on a reading task performed by 26 speakers in Moscow and Perm, shows that regional differences in first pretonic prominence are still found in modern urban Russian speech and thus is one of the few regional features heard in today's urban Russian speech (Post 2025a, b). An unusually long and low first pretonic [a] is a widely recognized sociolinguistic marker of Muscovite origins, according to Barnes (2007). In a footnote, he writes:

> "Purely anecdotally, ask nearly any native speaker of Russian for a characterization of a "Moscow accent", and the result will usually be an enthusiastically cartoonish rendition of the phrase *Ja iz Moskvy*, 'I am from Moscow' [...] rendered with first pretonic [a] in the initial syllable of Moscow extremely long, unmistakably low, and bearing a significant rising pitch contour" (Barnes 2007).

Vardøy's (2021) folk linguistic study confirmed that Moscovites are known for their prominent [a]-sounds. A Russian immigrant in Germany remarks that he speaks "an imperial Russian with a long drawn-out *a* for *o*, as it is spoken in Moscow, in Maaskvaa." In his conversations with a Ukrainian, "I try to spit out the *a* quickly" (my translations).[2]

Two questions arise: Why do the East Slavs put prominence on this unstressed vowel? And do *all* varieties of East Slavic actually have first pretonic prominence, if the prominence gets weaker towards the boundaries of the East Slavic dialect continuum?

To start with the first question: The literature on two degree reduction is extensive, but surprisingly few studies address its cause. Already in 1910, Tore's brilliant Norwegian predecessor Olaf Broch wondered whether the prominence of the first pretonic syllable in Russian is independent from the prominence of the following stressed syllable, or part of the same expiratory wave (*ėkspiratornaja volna*), as he called it (Brok 1910:225). More than 100 years and numerous studies later, the final word has

[1] For recent discussions and references, see e.g. Mołczanow 2022 and Post 2025b.

[2] "Ich spreche ein Imperialrussisch mit langgezogenem a statt o, wie man es in Moskau spricht, in Maaskwaa."; "ich versuche, das a schnell auszuspucken." (Boris Schumatsky, "Die russische Schuld", *Frankfurter Allgemeine Sonntagszeitung* Nr. 21, 29. Mai 2022)

not been said about the matter, but a plausible explanation is that the expression of what Dubina calls the prominence of the word is not restricted to the stressed syllable, but starts on the preceding one (cf. Dubina 2012), in other words, that it spreads from the head to the first syllable of Tore's iambic foot.[3]

My second and main question was whether East Slavic has varieties that lack first pretonic prominence, and, on a phonological level, a bisyllabic word centre. Knjazev considers this a major question in Russian dialectology (Knjazev 2006:142). Less reduction of the first pretonic vowel has been suggested even for Bulgarian, a language outside East Slavic, but a recent empirical study did not find evidence for this claim, which was not based on empirical data (Sabev 2023).

In (Standard) Belarusian and Ukrainian, the durational difference between second and first pretonic vowel is smaller than in Central Standard Russian, but even in a study of speech from Western Ukraine, in the periphery of the East Slavic dialect continuum, the first pretonic was slightly longer, even though Ukrainian lacks vowel neutralization with lowering to [a] and it has iterative secondary stress, which lengthens the second pretonics and thereby weakens the relative duration of the first pretonics (Łukaszewicz & Mołczanow 2018). Knjazev (2006), however, claims that many Russian rural dialects do not have a bisyllabic nucleus, neither do most northern dialects (Knjazev 2006:161; Duryagin & Knjazev 2022:58), nor part of the dialects that do have *akan'e* (neutralization) in the south (2006:162), with a reference to Vysotskij (1973), who measured vowel durations in 15 Russian dialect groups. The Russian rural dialects indeed show large differences in first syllable prominence (e.g. Vysotskij 1973; Post 2025a). In Vysotskij's data, however, some Northern Russian dialects actually have a much shorter a_{-2} than a_{-1}, and even in those that did have roughly the same durations in second (a_{-2}) and first (a_{-1}) pretonic position, a_{-1} was slightly longer (Vysotskij 1973:38-40). To our surprise, we found almost equal durations also in recent data of modern urban speech from Perm, a Russian variety with northern Russian features. In the speech of 13 girls and boys from Perm, the small difference in mean durations was not statistically significant, nor was the difference in F1 values, which reflect the vowel quality (in a reading task with the target words *topotát'*, *pokopát'* and *potakát'*; For details, see Post 20025a, b).

Can we conclude from these phonetic data that the word in Perm does not have a bisyllabic centre? This question is not easy to answer: The problem is the distance between phonology and phonetics. Surface phonetics is the sum of a large array of factors influencing the actual pronunciation of a word, of both linguistic and sociolinguistic nature, in addition to individual characteristics of the speakers. The

[3] This essay has no room to argue for this explanation, nor to discuss other unresolved issues about first pretonic prominence, such as the role of duration, vowel quality, tone and accentuation, and the conditions of non-low vowels. I will address some of them, among others, tone, in a upcoming article.

actual prominence parameters are extremely dependent on the prosodic conditions, and on the way the speaker chooses to express the word in each specific utterance. Our data reflect these individual differences. Some speakers read the sentences in the reading task with similar intonation and rhythmic patterns, but several participants had a creative approach to the task and pronounced the words with varying phrasing, focus and pitch accents. Fig. 1 gives an example. Speaker M11F pronounced the sentence *Ja topotát' uže ne búdu* 'I won't stamp feet anymore' twice, first with broad focus and rising pitch on *topotát'* (Fig. 1, left), then with contrastive focus and a sharp rise on the preceding word (*ja* 'I'; Fig. 1, right), leading to a deaccented target word *topotát'* with a steep fall in F0 (the blue line). Fig. 1 and 2 show the first two words, *Ja topotát'*, spoken with and without a pitch accent. We see large differences between the vowels in several acoustic parameters, but speakers of Russian will normally perceive the last syllable (*-tát'*) as lexically stressed in either case, since a vowel is prominent relative to its prosodic context and according to the speaker's expectations. I expect that a Russian speaker recognizes the lexical stress from the pronunciation of the first pretonic and tonic (stressed) syllables together.

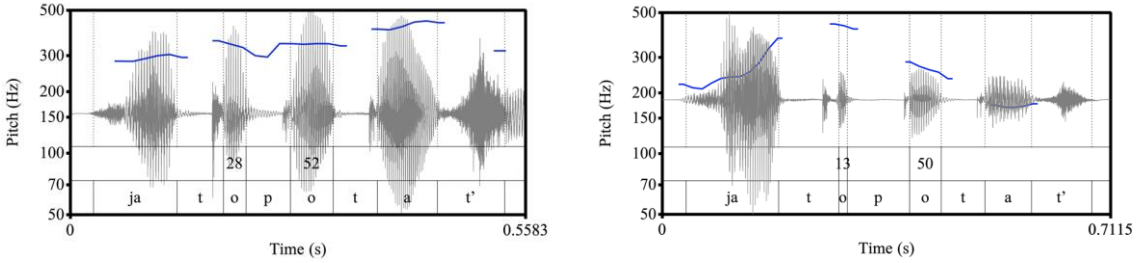


Fig. 1. Start of the utterance 'Ja topotát' uže ne búdu', in two different renditions by speaker M11F from Moscow, in Praat (Boersma & Weenink 1992-2026), showing oscillogram, F0 curve (blue line) and durations of the pretonic vowels in ms.

Most phonetic studies do not allow for such a high level of variation and are limited to one specific context in order to get comparable data. A drawback of these studies is their limited explanatory power for the many other possible conditions. In our study, we allowed for a much larger array of conditions than usual (variable positions in the utterance, focus patterns and pitch accents). We nonetheless found a stable difference between the pretonic positions in Moscow. The Moscow speakers whom Benedikte Vardøy and I recorded did not produce the stereotypical prolonged, prominent a's in first pretonic position. Their mean duration was only approx. 50 ms, often shorter than the surrounding consonants, but they were still on average twice as long as the preceding vowel. This change in duration from a_{-2} to a_{-1} was surprisingly stable across conditions and across speakers (Post 2025a, b). The vowel a_{-2} was much shorter than a_{-1} in nearly all pronunciations, despite highly variable prosodic contexts, such as in Fig. 1. a_{-1} is considerably longer and has higher intensity than a_{-2} in both renditions, even with

radically different focus and pitch patterns. Figure 2 below represents all productions of the trisyllabic target words by the girls in Moscow (left) and Perm (right). The figure for Moscow has only one falling line, so there is only one exception to the rule that a_{-2} is (usually much) shorter than a_{-1} in Moscow.

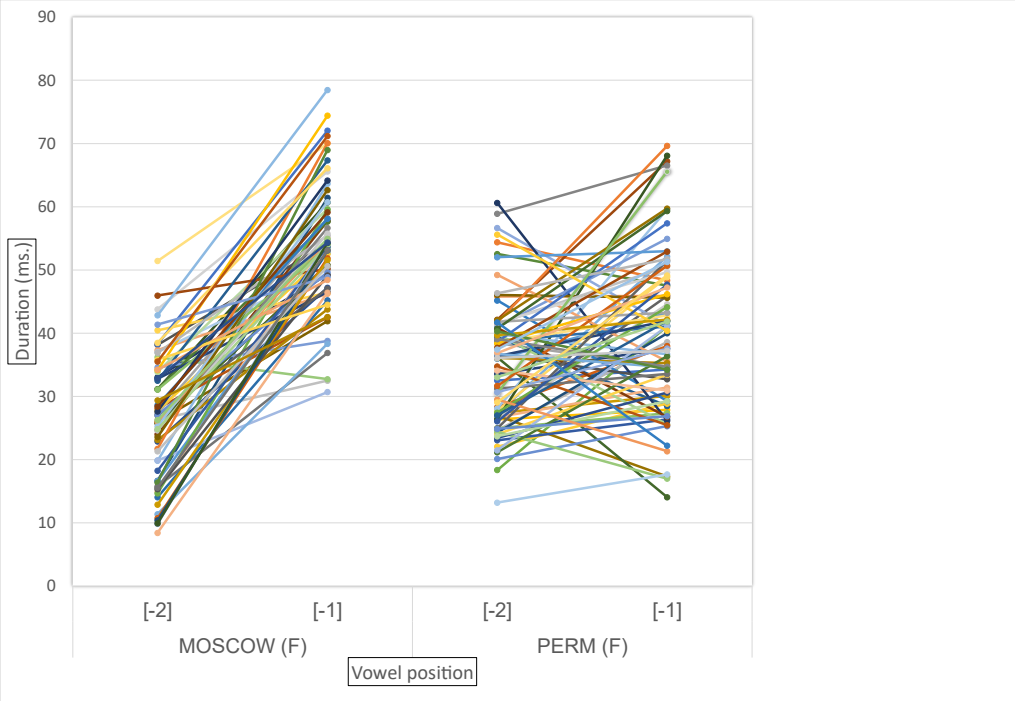


Fig. 2. Durations (in ms.) of the second (a_{-2}) and first pretonic vowels (a_{-1}) in all individual word tokens of topotát', pokopát' and potakát' by the female speakers in Moscow (left) and Perm (right).

This stability across contexts shows that the differentiation between the pretonic positions is a fundamental part of the phonology of Moscow speech. In this case, the high variability of the prosodic conditions in our data is not a drawback, but an advantage: It shows that our Moscow speakers pronounced the vowels differently (almost) no matter what.

How about Perm, with its non-significant difference between the positions, and a high level of variation between the tokens (in both duration and F1), as illustrated in Fig. 2 (right)? Can we conclude from our phonetic data that the Perm "dialect" does not differentiate the two positions? And that the word has no bisyllabic nucleus, or, in Tore's analysis, no iambic foot? Why did we still find a small difference?

At least two factors prevent us from drawing a conclusion directly from these phonetic data about the underlying phonology, for the results in Perm can have several causes.

A first possibility is that the Perm variety does have first pretonic prominence, but that it does not surface at the phonetic level because it is annihilated by factors giving the opposite result. For instance, the relative prominence of a_{-1} might be obscured by

boundary strengthening, which has been observed in northern Russian dialects, as mentioned by Duryagin and Knyazev themselves (2022:58), i.e. a tendency to lengthen the initial syllable, which is the second pretonic in our trisyllabic words. The Perm variety might also have secondary stress on this syllable, like Ukrainian. Or perhaps some speakers repeat the pattern with similar pretonic durations they started off with and superimpose this rhythm on all words of the reading task? Our reading task of 10 sentences with only trisyllabic words read by 13 speakers is too limited to exclude these causes. Furthermore, Perm speech might have a bisyllabic nucleus, but without its prominence starting already on its first syllable.

Second, the Perm recordings might represent more than one "dialect", and more than one phonological structure: one with a bisyllabic centre and one without. Vysotskij also found a small average durational difference even in the dialect group with almost even pretonic durations. Possibly, some speakers accommodated their speech to the non-local researchers who recorded them. Paufošima (1978:66) suspects that the younger speakers she recorded for her study of pretonic vowels tried to imitate the standard Russian rhythm, but succeeded only partly. Perhaps some of our speakers do the same. If we look at the individual speakers, we see that only part of them produce target words with first pretonic prominence.[4] It is not unlikely that these participants, especially the girls, blend local speech variants with supraregional (standard) forms, especially in this reading task in a formal setting. Sociolinguistic research in Perm has shown that the citizens of Perm do not speak a clearly defined Perm dialect. In actual speech, all *Permiaks* use a blend of local and supraregional features, choosing from the pool of variants they know. The frequency of local features varies with sociolinguistic variables, such as age, gender and level of education (Erofeeva 2005).

This evokes the kind of fundamental questions that make linguistics intriguing. Does it actually make sense to speak about a Perm dialect? How should we describe the phonology of the speakers from Perm: as one system that allows for variation and can account for both lack and presence of first pretonic prominence? Or do the speakers switch between two dialects, and two phonologies? Dyachenko, Pronina and Knyazev (2024) give an example of slightly different phonologies in neighbouring Russian dialects with dissimilative *akan'e*, and observed continuous phonologization of phonetic phenomena. Which phonology do today's children in Perm extract from the pool of actual forms they grow up with? With this last question we have returned to Tore's view on phonological change.

As usual, we ended up with at least as many questions as we started with.

So do all Russian varieties have first pretonic prominence, and Tore's iambic foot? Possibly not, but we need additional analyses and recordings, due to the variability of

[4] These results will be published in an upcoming paper.

phonetic data. Some conclusions can be drawn, however. The high level of variation in Perm is, at the very least, a sign that the differentiation between the pretonic positions is not a high-ranked constraint in Perm, to use a term from Optimality Theory, unlike in Moscow. Our recordings from Moscow show a remarkable level of stability in rhythm despite the highly variable prosodic conditions. This shows that the prominence of the first pretonic low vowels is fundamental for the Moscow speakers on a systematic, phonological level. And that even highly variable phonetic data from actual language usage can give evidence for a phonological rule.

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Peer-reviewed article

From Norm to Usage: Computational Insights into the Genitive–Accusative Alternation in Ukrainian with Reference to Russian

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Abstract

While sharing a common Slavic origin, Ukrainian and Russian exhibit both grammatical similarities and significant differences, particularly in noun morphology and vocabulary. This study investigates the representation of Ukrainian noun morphology, focusing on grammatical case and number, within distributional semantic vector spaces (fastText embeddings). We pay special attention to the complex relationship between the Accusative (Acc) and Genitive (Gen) cases, known for frequent alternation and syncretism in Ukrainian. Using t-SNE for visualization and DBSCAN for clustering on a dataset derived from the GRAC corpus, we analyze the structure of the vector space for Ukrainian nouns, comparing findings to previous work on Russian and conducting a direct comparison using translational equivalents. Our results show that while grammatical number provides a relatively strong organizing principle for Ukrainian nouns, case representation is less distinct, with substantial Acc/Gen overlap observed across multiple semantic classes, reflecting the pervasiveness of linguistic alternation rules (e.g., partitive, animacy-based, negation). A focused DBSCAN analysis of the ACC/GEN overlap zone revealed mostly diffuse similarity ("noise") but also distinct dense clusters

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comprising primarily AccSg, GenSg, and GenPl forms, notably excluding AccPl forms. Furthermore, a comparative t-SNE visualization showed that Russian translational counterparts of the Ukrainian nouns from these dense clusters exhibit a similarly high degree of Acc/Gen mixing. The findings highlight both potentially language-specific organizational principles (number dominance) and shared distributional tendencies between Ukrainian and Russian in representing Acc/Gen functional overlap, suggesting common underlying semantic factors are captured despite finer-grained grammatical differences.[1]

1. Introduction

Within the diverse landscape of Slavic languages, the East Slavic branch, comprising Russian, Ukrainian, and Belarusian, holds a unique position. While their shared ancestry is acknowledged, scholarly perspectives on their precise historical paths diverge. It is generally accepted that these three languages form a subgroup, though practical communication reveals nuances: mutual intelligibility is often reported as higher between Ukrainian and Belarusian than between Ukrainian and Russian. This observation hints at a complex relationship between Ukrainian and Russian, characterized by both grammatical similarities (Shevelov 1993; Timberlake, 1993) and a notable divergence in terms of their vocabulary (Press and Pugh, 2015a). While their grammatical structures share a common foundation rooted in their Slavic heritage, their vocabularies have followed notably distinct trajectories.[2]

This lexical divergence is particularly salient in quantitative comparisons. Contemporary Ukrainian and Russian share only about 62 % of their vocabulary, of which merely 18% consists of lexemes that are formally and semantically identical; an additional 44% comprises items that are recognizably related but not identical (Tyščenko, 2000). This stands in sharp contrast to Ukrainian's relationship with Belarusian (approximately 82% overlap) and Polish (around 70%). These figures underscore that Ukrainian and Russian, despite close genealogical ties, have followed distinct evolutionary trajectories, particularly in their lexical and morphological systems. While Ukrainian and Russian share a core grammatical framework of gender, number, and case, their contemporary realizations

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[2] The present analyses rely on standard descriptive grammars of both languages (Shevelov 1993; Timberlake, 1993; Bezpojasko, 1991).

diverge in subtle ways. For instance, Both languages historically treated the masculine as the unmarked member of gender opposition (Corbett, 1991). However, contemporary Ukrainian has developed a highly productive derivational system for feminine professional nouns, such as *inspektorka* ‘female inspector’ or *filolohynja* ‘female philologist’, a system formally codified in the 2019 Ukrainian orthography. Russian also possesses a range of derivational suffixes for feminine professional nouns. However, within Standard Russian (i.e. the codified literary norm), their productivity appears to be relatively more constrained and lexically uneven (Nesset et al., 2022). In many cases, professional nouns lack widely accepted feminine counterparts, or such forms display noticeable stylistic or register-based marking (Kirey-Sitnikova, 2021).

As shown in Table 1, Ukrainian exhibits a high degree of diversification of morphological forms (i.e., inflectional realizations), especially in the singular declension classes. The structural organization of the Ukrainian nominal vector space might be rooted in the inflectional landscape summarized in Table 1. This table serves as a functional map of distributional ’noise’ and ’signal’ for the computational model.

Cases	Singular				Plural			
	1	2	3	4	1	2	3	4
NOM	-a/-ja	Ø, -o /-e / -ja	Ø, -y	-ja/-a	-y/-i/-ji	-y/-i/ji, -a/-ja	-i	-a
GEN	-y/-i, -ji	-a/-ja, -u/ -ju	-i/-y	-jaty/ aty, -i/-ja	Ø, -ej, -iv	-iv/-jiv, Ø, ej	-ej, -iv	-am
DAT	-i/-ji	-u/-ju, -ovi/ -evi/-jevi	= GEN	-jati/ -ati, -i	-am/ -jam	-am/-jam	-am/ -jam	
ACC	-u/-ju	=NOM or GEN	=NOM	=NOM	=NOM or GEN	=NOM or GEN	=NOM or GEN	=NOM or GEN
INS	-oju/-eju /-jeju	-om/-em / -jem, -jam	-ju	-jam/ -am, -em	-amy/ -jamy, -my	-amy/ -jamy, -yma	-amy/ -jamy	-amy/- jamy,
LOC	= DAT	-i/-ji, -u/-ju, -ovi/-evi/-jevi,	-i	-jati/ -ati, -i	-ah/-jah	-ah/-jah	-ah/ -jah	-ah
VOC	-o/-e /, je, ju	-e, -u/ -ju, -ja	-e, -y/ Ø	= NOM	= NOM	= NOM	=NOM	=NOM

Table 1: Paradigmatic syncretism and inflectional diversification in Ukrainian nouns. The table highlights the formal overlaps (syncretism) and variations that govern the distributional behavior of word embeddings. High diversification in the singular vs. unification in the plural explains the spatial salience of Grammatical Number, while recurrent syncretism in the ACC row predicts the spatial overlap between cases in t-SNE visualizations

Differences in the nominal systems in Ukrainian and Russian extend to the status of the Vocative case. In the standard grammatical tradition, modern Russian is described as having a six-case system, with the historical vocative becoming obsolete by the late medieval period and being functionally replaced by the nominative (Vinogradov 1952; Švedova et al. 1980; Testelec 2001).

While contemporary Russian allows vocative-like address forms such as pap! or Saš!, these so-called "new vocatives" are generally analyzed as phonologically reduced or truncated forms restricted to a small and lexically limited set of kinship terms and personal names. They lack a productive morphological paradigm, do not participate in regular inflectional oppositions, and are not associated with case assignment or syntactic valency (Vinogradov 1952; Arkadiev 2008; Padučeva 1985, 2004).

This situation contrasts with contemporary Ukrainian, where since 1990s the Vocative is a morphologically distinct, productive, and paradigmatically integrated category. Although the Vocative is morphologically codified in Ukrainian, corpus-based evidence suggests it accounts for only approximately 40% of all address tokens, with the Nominative frequently substituted in contemporary practice (Shvedova and Lukashevskyi 2025). For a distributional model like *fastText*, this implies that the Ukrainian Nominative occupies a broader and more diverse set of syntactic contexts than its Russian counterpart.

The category of number further illustrates the importance of a paradigmatic, rather than purely formal, approach. Both languages today operate with a binary singular–plural distinction, but historically inherited a dual number, remnants of which persist in so-called paucal constructions with the numerals 'two', 'three', and 'four'. Both Ukrainian and Russian exhibit complexity in paucal constructions, but differ in their morphological preferences. In Ukrainian, nouns following numerals 2–4 typically occur in the Nominative plural (*dvi knyhy* NOM.PL. 'two books'), with Genitive singular forms attested in specific lexical, semantic, and constructional contexts (Stupak and Baayen, n.d.). The Nominative plural functions as the unmarked and most frequent option (Horpynyč 2004). However, the form (*dvi knyhy* NOM.PL. 'two books') often coincides morphologically with the Genitive singular of the noun, as in *knyhy* (GEN.SING) (see Table 1).

In the Russian grammatical tradition, by contrast, numerals 2–4 are traditionally analyzed as selecting a noun in the GEN.SING (Breu 2020; Franks and House 1982; Isačenko 1960; Švedova et al. 1980; Titov 2016; Corbett 1983; Plungjan 2011). However, Genitive singular forms can be syncretic with nominative plural forms (e.g., *dve knigi* 'two books' or *dva pjatna* 'two spots'). In other words, the syncretic form *knigi* is described as a Genitive singular in Russian grammars, while *knyhy* is described as a nominative plural in Ukrainian grammars.

This is not merely a label change; it represents a fundamental difference in how the language "tags" counting contexts. If Russian processes "plural" contexts (2–4 objects) as "Genitive Singular," the distributional model will logically pull plural vectors toward the singular-case cluster, reinforcing Case as the dominant signal. In Ukrainian, the alignment of these constructions with the plural paradigm may shift their vectors into either plural and singular clusters or a single unified plural cluster.

Taken together, the structural differences in gender, case and number raise broader questions about the interaction between shared grammatical heritage and language-specific morphological organization. These differences make Slavic languages an ideal testing ground for investigating how morphological structure is reflected in language use.

Recent developments in computational linguistics make it possible to approach such questions from a new perspective. Distributional semantic models represent words as vectors in a high-dimensional space derived from corpus data, allowing researchers to examine how grammatical categories are reflected in patterns of usage. Within this framework, morphological distinctions can be studied not only as formal categories, but also as distributional structures, observable through clustering and distances in vector space.

The present study brings together these two perspectives by examining Russian and Ukrainian nominal forms in a shared distributional space. Focusing on non-syncretic forms, which provide an unambiguous mapping between form and grammatical meaning, the analysis investigates whether case and number form coherent structures in vector space and how these structures differ across languages. By combining traditional morphological analysis with computational methods, the study aims to show how grammatical organization is reflected in distributional patterns.

2. Data Collection and Methodology

The methodological goal of this study is not to describe the Ukrainian or Russian nominal system as such, but to test how grammatical number and case distinctions are reflected in distributional semantic representations of noun word forms.

The data for this study were collected and processed in several stages. First, an initial dataset of Ukrainian noun word forms was extracted from the General Regionally Annotated Corpus of Ukrainian (GRAC, version 10) (Shvedova et al. 2017). The selection was based on GRAC's semantic tagging system (Starko 2020, 2021) (for a detailed description of the extraction procedure see (Stupak and Baayen n.d.)).

The entire dataset was morphologically annotated using the *Morphological Analyzer and Generator for Russian and Ukrainian Languages* (pymorphy2) (Korobov 2015). This

analyzer assigns all grammatically possible analyses to each word form independently of context. Due to extensive syncretism in Ukrainian noun inflection, many forms correspond to multiple case–number combinations.

All potential instances of case and number syncretism identified by the analyzer were explicitly annotated. Singular-only forms were encoded as "1" for singular and "0" for plural, while forms compatible with both numbers were marked as "1" for each value. For example, the form *posibnyky* 'tutorials, handbooks', which can occur as plural nominative, accusative, or vocative, was assigned a value of "1" for all compatible case–number combinations and "0" elsewhere. Out of the full dataset of 48,836 Ukrainian noun instances, 22,484 were classified as non-syncretic, i.e., forms that can be unambiguously assigned to a single combination of case, number, and gender.

Syncretism is a central feature of Ukrainian (Press and Pugh 2015b; Comrie et al. 1996), where multiple grammatical categories are often expressed by identical forms. However, in order to ensure a clear and interpretable mapping between morphological categories and distributional representations, the present analysis focuses exclusively on non-syncretic forms.

This restriction makes it possible to isolate the contribution of individual grammatical categories (case and number) without ambiguity. At the same time, syncretism is understood as an important structural property of the system and is taken into account in the interpretation of the results, particularly with regard to the degree of dispersion and overlap observed in the Ukrainian data.

So, the primary quantitative analysis focuses on non-syncretic forms. The non-syncretic noun set was filtered to include only those forms for which a corresponding 300-dimensional vector representation was available in the pre-trained fastText models obtained from https://embeddings.sketchengine.eu/. These vectors were trained on large-scale Ukrainian web corpora provided by Sketch Engine and are not restricted to GRAC, ensuring broad coverage of lexical items and contextual variation.

The analysis targets noun word forms and their behavior in semantic vector space. Vector space models are not explicitly trained on grammatical features (case, number, gender), but analyses of semantic vector spaces often show considerable structure by case, number, and gender, as will become apparent below.

In what follows, our analyses focus on increasingly specific aspects of the distributional structure of Ukrainian nouns. First, the full set of morphologically non-syncretic noun forms was analyzed in order to assess the global organization of the embedding space. In a second step, the dataset was restricted to nouns with both singular and plural forms in our dataset, with no restrictions on case.

In a third step, the analysis was limited further to nouns for which both singular and plural forms are attested within the same case (e.g. *stil* 'table, NOM.SG' vs. *stoly* 'tables, NOM.PL'), enabling direct comparison of number marking effects under identical case conditions. For these matched singular–plural pairs, shift vectors were computed following (Shafaei-Bajestan et al. 2022a). Each shift vector is defined as the difference between the plural and the corresponding singular embedding and represents the change in semantic space when moving from a singular to its corresponding plural while holding grammatical case constant.

To analyze the structure within the high-dimensional semantic space of the collected noun data, we employed t-Distributed Stochastic Neighbor Embedding (t-SNE) (Maaten and Hinton 2008), an unsupervised clustering method. Important for our analyses is that t-SNE re-presents the high-dimensional word embeddings as points in a two-dimensional space, in such a way that clusters in the original space become visible in 2-D scatterplots. To interpret these clusters, color-coding based on linguistic features was added by hand to aid interpretation. We utilized the default settings of the Rtsne package in R. Our specific goal was to see if nouns used in different grammatical roles (cases) or number forms (singular/plural) would form distinct clusters in t-SNE maps, as observed in previous studies for Russian (Chuang et al. 2022) and Finnish (Nikolaev et al., n.d.).

For evaluating how well linguistic features can be predicted from embeddings, we complemented the t-SNE method with Linear Discriminant Analysis (LDA), as t-SNE may not be able to find proper clusters for features that are widely distributed in the semantic space and that explain only small proportions of the variance (see, e.g., Stupak and Baayen 2023).

Across all stages of the analysis, Genitive and Accusative noun forms show substantial overlap in the embedding space (Figures 1, 2, 3). To identify small "islands" of closely related words within this overlap in Figure 1, we applied DBSCAN—a clustering method that groups nearby points while treating isolated points as noise—specifically to the subset of word forms labeled as Genitive- or Accusative-specific (i.e., gent_non_sync = TRUE or accs_non_sync = TRUE). Clustering was performed in the two-dimensional space defined by the coordinates X1 and X2. DBSCAN detects clusters as locally dense regions: a point is assigned to a cluster if it lies within a radius eps of a core point, where a core point has at least minPts neighbors within that radius; points that do not satisfy this density criterion are treated as noise (cluster label 0). In our implementation, we set eps = 0.5 and minPts = 5, so that a cluster is formed only when at least five points occur within a neighborhood of radius 0.5 in the (X1, X2) space. The resulting cluster labels were then added back to the dataframe for subsequent inspection and visualization.

The list of Ukrainian nouns used in the subsequent analysis was constructed based on the clusters detected by DBSCAN. After applying DBSCAN to the subset of Genitive- and Accusative-specific word forms, we retained only those items that were assigned to a non-zero DBSCAN cluster. This procedure yielded a set of 1,537 Ukrainian noun forms, which served as the basis for the comparative analysis of Ukrainian and Russian noun forms in the Genitive and Accusative cases. These nouns were translated using automated tools, and each translation was subsequently manually verified to ensure correspondence with the closest Russian lexical equivalent. If a noun corresponds to a Ukrainian feminine professional title but lacks an equivalent feminine form in Russian, it was excluded from both the Ukrainian and Russian lists.

The data were morphologically annotated for Ukrainian following the same procedure, with the analysis subsequently restricted to non-syncretic forms to ensure precise measurement of grammatical case and number. Specifically, masculine animate nouns exhibiting syncretism between the Genitive and Accusative were excluded. In addition, plural forms were filtered out because, in both languages, plural nominative forms are frequently syncretic with genitive or accusative plurals, leaving no non-syncretic plural forms in the dataset after morphological annotation. Consequently, the comparative analysis includes only singular nouns, with 467 Accusative Singular (ACC.SG) forms and 238 Genitive Singular (GEN.SG) forms.

The comparative analysis relies on pre-trained fastText embeddings. A methodological challenge concerned the dimensionality of the embedding spaces: Ukrainian TenTen embeddings are 300-dimensional, whereas Russian TenTen embeddings are available only in 100 dimensions. To ensure dimensional compatibility, we therefore used 300-dimensional fastText embeddings for Russian, fastText embeddings trained on Common Crawl and Wikipedia data (Bojanowski et al. 2017).

The comparative perspective on Ukrainian and Russian introduced in Section 3 is based on previously established distributional patterns for Russian (Nikolaev et al. n.d.) and serves to contextualize the present analysis of Ukrainian data. By contrast, the analysis of Genitive–Accusative alternation in noun embeddings presented in Section 4.2 constitutes the original contribution of the study.

3. Visualizing How Ukrainian Nouns are Used: Cases and Number

The data was collected with the primary goal of determining whether nouns used in different grammatical roles (cases) or number forms (singular/plural) would form distinct groups on these maps.

3.1 Distribution of Ukrainian nouns in Case and Number

To visualize the distribution of forms in vector space, we use t-SNE (t-distributed Stochastic Neighbor Embedding), a dimensionality reduction technique that projects high-dimensional vectors onto a two-dimensional plane. Importantly, the x- and y-axes in Figure 1 do not have an independent linguistic interpretation. Instead, what matters is the relative position of points:

- points that are close together represent forms that occur in similar contexts,
- points that are far apart represent forms that occur in different contexts.

Clusters in the plot indicate that a group of forms shares similar distributional behavior. If forms belonging to the same grammatical category (e.g., case) form a tight cluster, this suggests that the category is distributionally coherent. If they are scattered, this indicates weaker coherence and greater interaction with other categories.

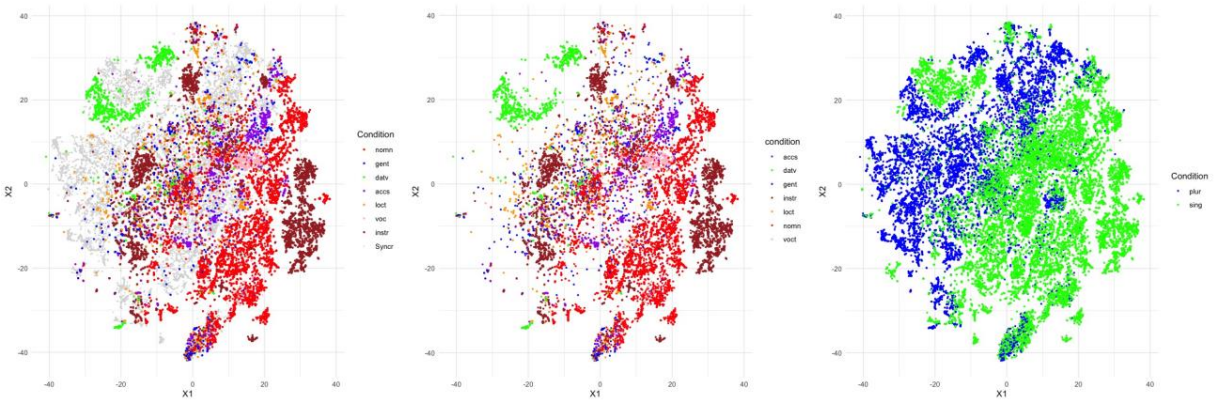


Figure 1: Morphological Landscape of Ukrainian Noun Forms: Syncretism vs. Distinct Realizations. This figure categorizes the dataset by its morphological clarity across case and number. The left panel illustrates the density of syncretic forms (in grey), where case–number realizations overlap, creating potential ambiguity in the vector space. The middle and right panels isolate non-syncretic (distinct) forms to compare the salience of different grammatical categories. A comparison between the middle panel (case distribution) and the right panel (number distribution) reveals that grammatical number provides a more discrete categorical organization than case. This structural clarity is bolstered in Ukrainian by specific morphological markers, such as those found in feminine professional nouns, which reduce syncretic "noise" and allow for more precise vector clustering of number over case

As shown in the left panel of Figure 1, widespread syncretism appears as mixed grey areas, confirming its status as an inherent structural property of the Ukrainian nominal paradigm (Press and Pugh 2015b; Comrie et al. 1996). Many forms simultaneously realize two, three, or more case values. A comparison of the left panel with the middle panel (non-syncretic forms across cases) and the right panel (non-syncretic forms across number) further indicates that syncretism is more pervasive within the domain of case than within number. This distributional pattern is consistent with the formal overlap summarized in Table 1, which shows that syncretism in Ukrainian noun inflection primarily arises from extensive

case-internal overlap of endings within number paradigms, particularly in the singular, whereas number distinctions remain comparatively more stable due to the greater formal uniformity of plural paradigms.

Because this study relies on word-based embeddings, syncretic forms are set aside for future work, and the analysis focuses on non-syncretic forms. Restricting the dataset to non-syncretic forms thus allows for a more precise isolation of the contributions of grammatical case in the middle panel and grammatical number shown in the right panel of the Figure 1.

The middle panel shows the distribution of the same noun forms colored by grammatical case. Here, only partial clustering is observed. Noun forms associated with the Instrumental (dark red), Nominative (red), and Dative (green) cases exhibit some degree of spatial concentration, whereas the remaining cases largely overlap in the central regions of the space. This overlap complicates a straightforward interpretation of case-based separation.

Importantly, the apparent weakness of case-based clustering is partly attributable to the interaction between case and number. The distribution of forms across cases is uneven with respect to number: for example, the Dative is sparsely represented in the singular, while the Nominative and Genitive are underrepresented in the plural. As a result, case distinctions are to some extent subsumed under the more prominent number-based structuring of the space.

The right panel reveals a clear large-scale structuring of the embedding space by grammatical number. Singular and plural forms of animate nouns occupy largely distinct regions of the semantic space, with relatively limited overlap. In contrast, the central area—where some overlap occurs—is predominantly occupied by inanimate nouns. While the separation is not categorical, the distribution suggests that singular and plural noun forms tend to occur in systematically different distributional contexts, which is reflected in their vector representations.

The way the semantic space of Ukrainian is structured differs from the semantic spaces of Russian (Chuang et al. 2022; Zinova et al. 2024) and Finnish (Nikolaev et al. n.d.). For these languages, forms cluster first by case, and within case, by number. The above-mentioned studies present evidence that the change from singular to plural systematically differs by case (see also Shafaei-Bajestan et al. 2022b, for conditional plurality in English).

To clarify how grammatical number and case structure the semantic space of Ukrainian, we created a subset of non-syncretic forms that contains all singular-plural pairs sharing the same case, such as *stil* ‘table’ singular Nominative vs. *stoly* ‘tables’ plural Nominative. This restriction excludes singulare tantum and plurale tantum nouns allowing us to isolate the effect of grammatical number while preserving the internal case structure. Importantly, this restriction does not substantially alter the overall organization of the semantic space observed in Figure 1.

The left panel of Figure 2 reveals a striking separation between singular and plural forms, with relatively little overlap in central regions of the embedding space. This occurs for nouns that denote quantified entities (e.g., *cina* 'price', *mil'jon* 'million') and collective nouns (e.g., *sojuz* 'unity', *pidpryjemstvo* 'enterprise'). These patterns show that semantic collectivity can partially override grammatical number, producing regions where singular and plural nouns converge.

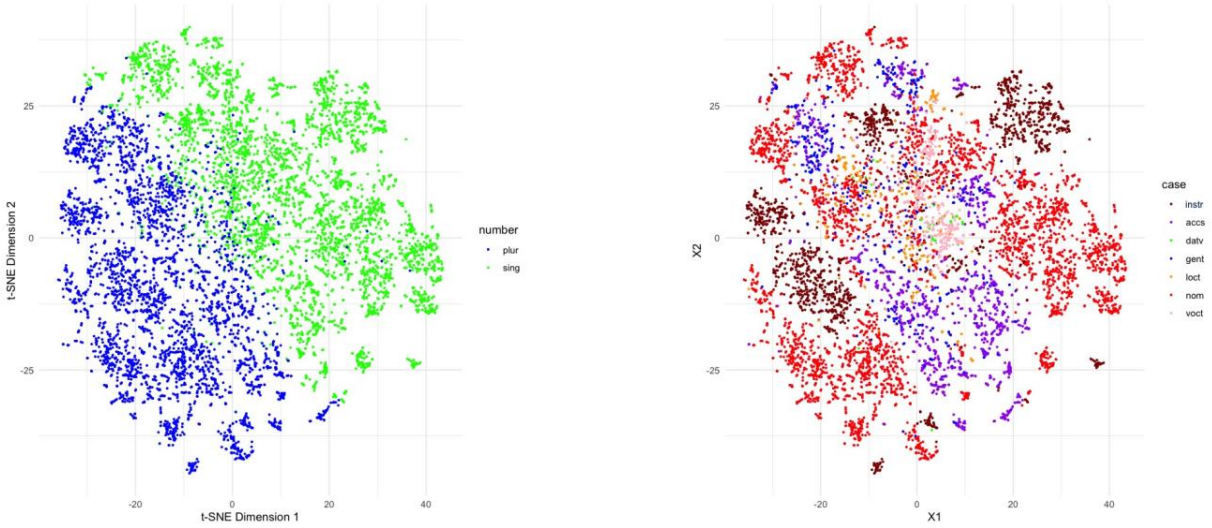


Figure 2: Distribution of Ukrainian non-syncretic nouns restricted to those with both singular and plural forms in the dataset, without case restrictions. The left panel demonstrates a clear, binary bifurcation of the vector space, confirming that grammatical number is the dominant organizing principle for Ukrainian nouns. In contrast, the right panel reveals significant intra-cluster diffusion among grammatical cases. The lack of distinct case boundaries—even in this filtered, non-syncretic dataset — empirically illustrates that case alternations (such as the Accusative-Genitive overlap) are deeply embedded in the distribution of the language, whereas the distinction between singular and plural remains a robust, primary structural divide

Within each number region, smaller clusters are present. The right panel of Figure 2 clarifies that these smaller clusters correspond to individual grammatical cases. For the Nominative (red) and Instrumental (brown) forms, several distinct clusters are present both within the region of singulars and within the region of plurals. The Genitive (blue) and Accusative (purple) forms show considerable overlap, and also form several subclusters. There are very few dative pairs (green), they cluster with the locative forms (pink) in the center of the t-SNE map.

There are also zones of partial overlap—particularly in coordinates approximately ranging from X1: –20 to 20 and X2: –5 to 30—where case boundaries are less distinct. Examples include singular–plural pairs such as *material* 'material', Nom.SING. and *materialamy* INS.PL., *podija* 'event', NOM.SING. and *podijax* LOC.PL., or *sojuza* 'unity' GEN.SING. and *sojuzamy* INS.PL. Notably, shared areas are especially pronounced between the Accusative (purple) and Genitive (blue) cases (see Section 4).

3.2 Shift Vectors for case and number

Although the overall t-SNE maps of Ukrainian, Russian and Finnish differ, it is possible that the semantics of plurality interacts with case. We therefore calculated the shift vector that, when added to the singular vector, results in the corresponding plural vector (Figure 3).

These vectors capture the direction and magnitude of change associated with a given grammatical contrast. If vectors corresponding to a particular contrast (e.g., number) are similar across many words, this suggests that the contrast is systematically encoded in the semantic space. By comparing the consistency of vectors associated with case and number, we can assess which category plays a more prominent role in structuring the distributional space.

The shift vectors in Figure 3 represent the distributional change associated with plural marking while holding case constant. This result provides further evidence for the possibility that plural inflection is not governed by a deterministic, unitary semantic operation. In addition, shift vectors tend to vary from word to word. On the one hand, this could be argued to be measurement noise in the word embeddings, and hence non-deterministic.

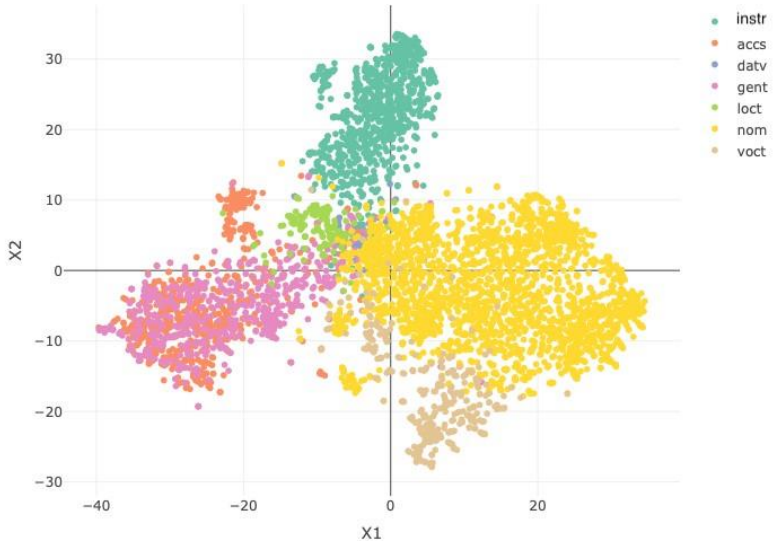


Figure 3: Distribution of Ukrainian shift vectors for number shows considerable clustering by case

Figure 3 shows that the Ukrainian shift vectors for number, when case is held constant, also show by-case clustering. However, the distribution of Ukrainian shift vectors also reveals overlapping areas near the center of the plot, and in addition particularly notable overlap between the Accusative and Genitive cases in the lower left of the t-SNE shift map. In

contrast, Russian shift vectors exhibit more overlap between the Nominative and Accusative cases (see Chuang et al. 2022; Zinova et al. 2024).

A clear difference between Ukrainian and Russian concerns the degree of overlap between the Accusative and Genitive cases: in Ukrainian, these cases show substantial convergence in the embedding space (Figure 1, 2, 3), whereas previous studies report a more distinct separation in Russian (cf. Chuang et al. 2022; Zinova et al. 2024).

3.3 Genitive-Accusative Overlap in the t-SNE map

Figure 4 visualizes the semantic vectors of morphologically non-syncretic Ukrainian nouns in the t-SNE map, with the data restricted to the datapoints in the center area of the middle t-SNE panel in Figure 1, the area where there is considerable overlap of Accusative and Genitive forms. The three panels in Figure 4 all present the same datapoints. In the left and center panels, color coding is used to distinguish between GEN (blue) and ACC (green). The center panel uses different plot symbols for the semantic classes. The right panel color-codes for animacy (black: inanimate, red: animate).

In the left panel, the genitive forms are distributed somewhat more to the upper left, and the accusative forms more to the lower right. Nevertheless, there is considerable overlap.

The center panel uses different plot symbols for the semantic classes that are available in the GRAC corpus (Starko 2020, 2021). Annotation for semantic class is incomplete in this resource, which is still under construction. As a consequence, the diversification across semantic classes has to be interpreted with caution. The classes of animals and professions are represented by many types (646 for the animals, 432 for the professions), but other classes, such as food, furniture, and plant are represented by only a handful of types (1, 2, and 11 respectively). We assigned a word to the animate class if it had at least one sense with an animate interpretation. Thus, since *čornoburka* is animate in the sense of 'fox', although inanimate in the sense of 'fur', it was categorized as animate. The center panel of Figure 4 suggests that the overlap of genitive and accusative forms in the t-SNE map is not bound to specific semantic classes. For instance, there are areas in the t-SNE map where animals (upward triangles) differentiate between case, but other areas where there is substantial overlap.

The right panel of Figure 4 presents the data points with color highlighting for animacy. Comparison of the left and right panels show that there is considerable overlap between genitive case and animacy on the one hand, and accusative case and inanimacy on the other hand. Within the set of words with genitive case, 361 are inanimate and 339 are animate. Conversely, within the set of words with accusative case, 137 are inanimate and 740 are animate ($p < 0.0001$, chi-squared test).

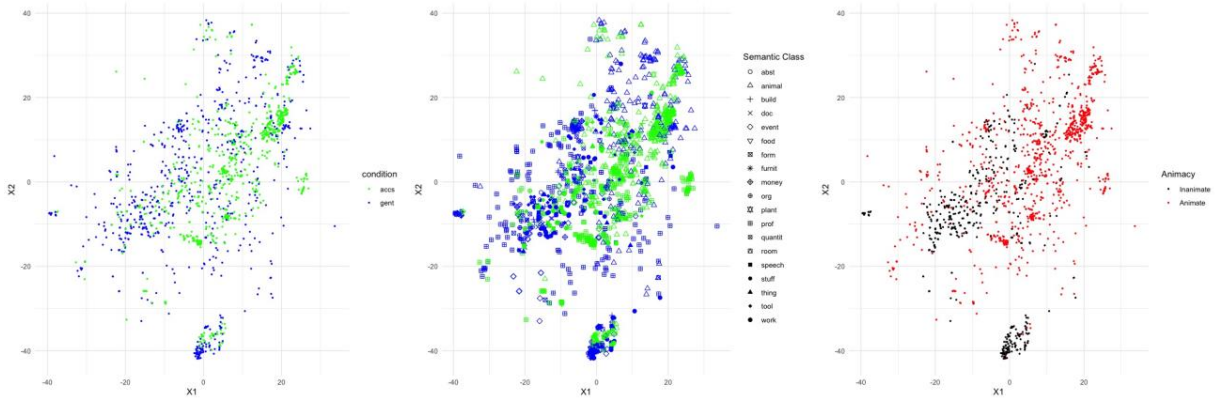


Figure 4: Distribution of Ukrainian nouns in Genitive (in blue) and Accusative (in green) cases. The left plot illustrates the distribution of Ukrainian nouns in genitive and accusative cases. The middle plot presents their distribution in Genitive and Accusative cases within semantic classes. The right panel highlights the distribution of animate and inanimate nouns within genitive and accusative cases

In summary, for the area of overlap for accusative and genitive forms in the t-SNE map Figure 4, the animate nouns tend to favor accusative case, while inanimate nouns favor genitive case. There is no reliable evidence that semantic classes are at issue, and since animacy provides only a trend, the question remains why there is considerable overlap. In the next section, we consider the role of syntactic factors.

4. The Genitive and Accusative Alternation in Ukrainian and Russian

4.1 Theoretical Overview of Genitive and Accusative Alternation in Ukrainian and Russian

Variation between these two cases has been extensively documented in descriptive and theoretical studies in Ukrainian (Bezpal'ko et al. 1962; Vyxovanec' 1987; Vyxovanec' & Horodens'ka 2004; Pljušč 2018) as well as in Russian (Timberlake 1993; Bjeljajev 1980). Although the Accusative is generally regarded as the default case for marking direct objects in affirmative clauses, the Genitive appears in a range of semantically and pragmatically conditioned environments.

One major domain of alternation is negation. Historically, both Genitive and Accusative marking of direct objects have been attested since Old East Slavic (Bezpal'ko et al. 1962). In traditional Ukrainian usage, the Genitive was strongly preferred under sentential negation. However, from the late twentieth century onward, a gradual expansion of Accusative marking in negated contexts has been observed, particularly in scientific,

technical, and colloquial registers (Chaika et al. 2024). As noted by Vyxovanec' & Horodens'ka (2004), speaker intention and communicative focus often play a decisive role. Some scholars argue that the genitive is dominant in negative constructions in Ukrainian (Pljušč 2018; Kryshevich 2010; Kolibaba 2014) and is used more widely than in Russian (Kryshevich 2010) but large-scale quantitative evidence is lacking.

By contrast, Russian Genitive in negative constructions is sensitive to definiteness, scope, aspect, verb class, and information structure (Timberlake 1993; Padučeva 2006; Brown and Franks 1995; Kagan 2012). Furthermore, finding (Krasovitsky et al. 2011) demonstrates that the relative weight of constraints on the GN in Russian has shifted diachronically: while verb aspect played a more prominent role in earlier stages of the alternation, noun abstractness has become the most influential factor in present-day Russian.

Partitive constructions provide another domain of alternation in both languages. In Ukrainian, the Genitive typically signals indefiniteness or partial affectedness, whereas the Accusative tends to mark total affectedness or referential specificity. For example, contrasts such as *ne vzjav salo* 'did not take the (whole) lard' versus *ne vzjav sala* 'did not take any lard' illustrate how case marking interacts with quantity and interpretation (Vyxovanec' 1987).

Similarly, in Russian, the Genitive is preferred in partitive contexts, particularly with mass nouns or when the object is non-specific, while the Accusative indicates a fully affected, definite entity (Timberlake 1993; Pesetsky 1982).

Importantly, in Ukrainian, the Genitive and Accusative can optionally appear with direct objects in affirmative contexts as well. For example, both ACC *Ja napysav lysta* and GEN *Ja napysav lyst* 'I wrote a letter' are acceptable, with subtle distinctions in definiteness or aspectual nuance.

In Russian, by contrast, such constructions typically require the Accusative *Ja napisal pis'mo* and the Genitive without a preposition is rarely used outside negation or partitive contexts.

Taken together, these observations suggest that while both languages exhibit Genitive–Accusative alternation, Ukrainian maintains a comparatively symmetrical and semantically diversified system, whereas Russian displays a more asymmetrical and structurally conditioned distribution. If distributional semantic representations are sensitive to such grammatical organization, we may expect these differences to manifest in the geometry of the embedding space. In particular, a structurally competitive alternation, as in Ukrainian, may yield stronger and more systematic distributional signals, whereas a more restricted and asymmetrical alternation, as in Russian, may result in a more diffuse encoding of case information.

4.2 Comparative Visualization of Ukrainian and Russian Counterparts in Accusative and Genitive Cases

Building on the theoretical overview of Genitive–Accusative alternation in Ukrainian and Russian, we turned to a direct comparison of usage patterns. In what follows, we present a comparative visualization of Ukrainian and Russian counterparts in the Accusative and Genitive cases.

Figure 5 presents t-SNE maps for Ukrainian (left panel) and Russian (center panel) singular nouns in the Genitive (red) and Accusative (green) cases.

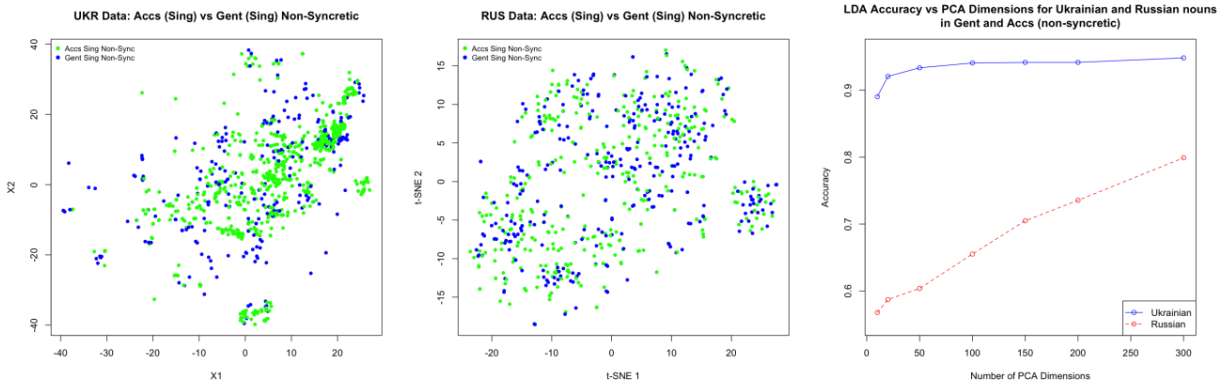


Figure 5: Distribution of Ukrainian and Russian non-syncretic translation equivalents of singular nouns in Genitive (in blue) and Accusative (in green). Left panel: Ukrainian, center panel: Russian, right panel: LDA classification accuracies for increasing numbers of principal components of the embedding spaces

In Ukrainian (Figure 5, left panel), although the two cases overlap substantially, a weak spatial tendency can be observed: Genitive forms are more often located toward the left of the semantic space, whereas Accusative forms tend to appear toward the right. In addition, Accusative forms show locally denser clusters, suggesting greater internal cohesion in their distributional profiles.

In contrast, the Russian t-SNE map shows no systematic spatial separation between Genitive and Accusative forms (Figure 5, middle panel). The two cases are heavily interspersed across the semantic space, and no consistent clustering or directional bias is visible. Moreover, Russian noun embeddings appear more broadly dispersed than their Ukrainian counterparts, indicating greater variability in contextual usage.

While t-SNE reveals some structure in the Ukrainian data, visual inspection alone does not provide a decisive basis for evaluating the separability of the two cases—particularly given that t-SNE primarily captures dominant dimensions of variation and may obscure finer-grained contrasts. To complement the t-SNE analysis, we applied Linear Discriminant Analysis (LDA), treating embedding vectors as predictors and grammatical case as the target category. Using leave-one-out cross-validation, the model achieved 95% accuracy

for Ukrainian and 80% for Russian. This suggests that case distinctions are more clearly reflected in the Ukrainian distributional space.

To assess the extent to which case is represented in higher dimensions of variation, we orthogonalized the semantic spaces using principal components analysis, and evaluated LDA classification accuracy for increasing numbers of retained principal components (10, 20, 50, 100, 150, 200, and all 300). The results are shown in the right panel of Figure 5.

As shown in the right panel of Figure 5, Ukrainian nouns reached 89% accuracy using just the first 10 principal components, whereas for Russian, classification accuracy was 57%. For Ukrainian, learning accuracy asymptotes around 100 PCA dimensions, whereas for Russian, accuracy for 100 dimensions is only 70%. This analysis shows that in Ukrainian, case is represented on dimensions that capture substantial amounts of variance, whereas for Russian, many principal components that explain only small amounts of variance are required to obtain the best possible prediction accuracy (which only reaches 80% when the full 300-dimensional space is taken into account). This indicates a more diffuse distribution of case information in Russian as compared to Ukrainian.

5. General discussion

This study integrates quantitative classification, dimensionality reduction, and visual exploration to examine how grammatical number and case are encoded in distributional embeddings of Ukrainian nouns. Our primary aim was to analyze Ukrainian noun forms across number and case and to compare these patterns with those observed in Russian noun embeddings (Chuang et al. 2022; Zinova et al. 2024). In addition, we examined genitive and accusative forms of identical lexical nouns in both languages to assess how case alternation manifests in embedding space.

A key insight from the t-SNE visualization of Ukrainian noun embeddings is the prominent separation by grammatical number (singular vs. plural), which stands in contrast to previous findings for Russian (Chuang et al. 2022; Zinova et al. 2024), where case emerged as the primary organizing principle. In Ukrainian, case forms secondary sub-clusters within number-based regions in semantic space. The dominance of number in the t-SNE map suggests that number constitutes a more stable and salient organizing dimension in Ukrainian embeddings than case. In Russian, by contrast, distributional patterns captured by the embeddings indicate a stronger role for case and a comparatively weaker contribution of number.

We suggest that this structural clarity is a "distributional footprint" of the broader morphological system. The productive use of feminine professional titles in Ukrainian (e.g., *inspektorka*) creates a high volume of singular and plural non-syncretic data in the training

corpus. Furthermore, the normative alignment of paucal constructions (2, 3, 4) with the Nominative Plural in Ukrainian acts as a categorical reinforcer. By contrast, the Russian requirement for the Genitive Singular in these same contexts creates a "distributional drag"—a latent signal that pulls plural contexts toward the singular-case cluster, reinforcing Case as the dominant organizing signal even for non-syncretic lexemes.

Surprisingly, however, not only in Russian but also in Ukrainian, the shift vectors associated with plural formation cluster by case. Unlike in Russian, the Ukrainian shift-vector clusters show considerable overlap between Genitive and Accusative forms. This pattern aligns with the observed overlap of Genitive and Accusative noun embeddings in Ukrainian more generally and is consistent with well-documented accounts of Genitive–Accusative alternation in Ukrainian grammar, particularly in contexts involving negation, partitivity, and the increasingly productive use of the Genitive as a “second Accusative”.

Notably, this overlap is not restricted to specific semantic noun classes but is broadly distributed across the lexicon, suggesting that it reflects a systemic property of Ukrainian case usage rather than isolated lexical effects. The observed distribution is likely shaped by the interaction of inherited prescriptive norms, more recent re-evaluations of traditional Ukrainian usage patterns, and fluid contemporary language practice.

A direct cross-linguistic comparison of Genitive and Accusative noun embeddings in Ukrainian and their Russian translational equivalents revealed further differences. While t-SNE visualizations show considerable intermingling of the two cases in both languages, Linear Discriminant Analysis (LDA) yields substantially higher classification accuracy for Ukrainian (95%) than for Russian (80%). The fact that Ukrainian reaches peak accuracy with significantly fewer principal components (25 vs. over 300 in Russian) indicates that the semantic and syntactic boundaries of these cases are more compactly encoded in Ukrainian. While both languages exhibit an expansion of the Genitive into traditional Accusative contexts (Vyxovanec’, I. R. & Horodens’ka 2004; Bjeljajev 1980), the Ukrainian system appears to maintain sharper functional differentiation.

These results suggest that, despite somewhat similar surface-level visual overlap in t-SNE plots, the semantic and syntactic distinctions between the Genitive and Accusative cases are more clearly and compactly represented in Ukrainian embeddings. This observation resonates with grammatical analyses noting key differences in the nature of Genitive–Accusative alternation across the two languages. While both exhibit an expansion of Genitive usage into contexts traditionally associated with the Accusative (Vyxovanec’, I. R. & Horodens’ka 2004; Bjeljajev 1980), Russian imposes stronger constraints — for instance, restricting Genitive usage to abstract or idiomatic expressions (Čujkova 2021). These constraints may be leading to greater contextual overlap and more diffuse encoding of case distinctions in Russian embeddings. In contrast, Ukrainian appears to exhibit

sharper functional differentiation, which is reflected in the greater discriminability of its case forms in the embedding space.

Taken together, these observations suggest that the differences observed in vector space are not arbitrary, but reflect deeper properties of the morphological systems. Rather than being determined solely by abstract grammatical categories, the distributional organization of case and number appears to be shaped by the interaction of syncretism, paradigmatic structure, and usage patterns. This perspective supports a dynamic view of grammatical categories as emerging from the interplay of form, function, and frequency in actual language use, rather than as fixed, pre-defined entities.

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Original research article

If you think twice, you might not forget: inhibition and memory-maintenance trade-offs in Russian single vs. Hausa bipartite negation

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Abstract

Several approaches have attempted to explain the skewed distribution across languages and regions of bipartite compared to single negation, the latter unequivocally the most common, but still often subject to diachronic change. It is a paradox that double negation arises, among other things, to strengthen negation semantically or define its scope, while at the same time, this fortification may lead to its demise. Several grammaticalization pathways result in double, discontinuous negation typologies negating single events or constituents, but such constructions seem to be inherently unstable. Here, I look into the possibility that when negation-induced forgetting, or NIF, a cognitive phenomenon which presumably affects all types of negation, is applied in bipartite negation, it simply becomes too much for memory to handle. NIF research has established that when negated sentences are processed, the mind simulates the affirmative as well as the negative version in parallel, straining processing capabilities. Working memory limits the number of units to be kept actively in mind to about four chunks, which directly impacts on how many syntactic constituents, and how long and complex they are, may intervene between a first and a second negator, in the case of double discontinuous negation. In the case of Hausa, this has the effect of moving the second negator forward to the next syntactic landing site, even if this means bisecting a negated constituent. Such behavior is absent in Russian simple, contiguous, and compact negation, undoubtedly the most common negation type

across languages and regions. The possibility that Russian, too, might be in the process of developing a second negator is considered, and rejected. However, Russian single negation also faces memory-related drawbacks; it is argued that focal negation and late negator placement in incremental syntactic processing logically leads to deeper NIF effects compared to distributed and early negator systems. Evidently, linguistic negation typology does not select or reject negation strategies based on how deeply a negated content is forgotten; instead, memory might index negation strategies given that the same general neurocognitive mechanisms that produce NIF: activation, inhibition, prediction, and working-memory allocation, are also the mechanisms that shape real-time language processing.

1. Introduction

The present study is intended as a theoretical and explanatory contribution rather than an experimental one. Its aim is to integrate findings on negation phenomena from typology, grammaticalization, psycholinguistics, and cognitive neuroscience into a unified account of why bipartite negation systems may be diachronically less stable than monopartite systems. The hypotheses advanced here are grounded in established empirical findings from these fields but are not themselves tested experimentally. Instead, they are offered as theoretically motivated predictions that can be evaluated in future psycholinguistic and cross-linguistic research.

1. 1. Negation typology and distribution suggests recurrent change

Negation is an indispensable semantic relation in human language, yet despite its logical simplicity, its linguistic expression varies widely across languages. Linguistic typology reveals a rich variety of ways in which languages mark negation, the starkest contrast being that between a single negator contiguous to its negated material, and bipartite, discontinuous negators wide apart, both negating one event, not two.

Cross-linguistically, languages with a single standard negator[1] (most often preverbal, e.g., Russian, see (1)) clearly outnumber languages with obligatorily discontinuous (bipartite) negation, though bipartite patterns are far from marginal (van der Auwera & Krasnoukhova 2020; Lindblom 2013).

[1] Following the typological distinction between monopartite and bipartite negation, I use the more transparent terms **single negation** and **double negation** in the remainder of the paper to refer respectively to constructions with one versus two grammatical negators.

(1) Ja ne znaju *Russian*
1SG NEG know.1SG.PRS
'I don't know'

Discontinuous marking of standard negation is common and has been documented in numerous languages across diverse language families (Li 2019), including the Afroasiatic language Hausa (Newman 2000), see (2)):

(2) bà-n sanìi ba *Hausa*
NEG1-1SG know NEG2
'I don't know'

To get an impression of its distribution, the World Atlas of Language Structures Online (WALS: https://doi.org/10.5281/zenodo.13950591) report that among 1,325 languages of so-called "simple clausal negation", the majority (1,060) have a single negative marker either before (as in 3a) or after (3b) the verb, while 114 languages are coded as having obligatory double negation (3c), 80 as having optional double negation markers (3d), and 5 languages have optional triple negation with obligatory double negation (3e) (Dryer 2013: http://wals.info/chapter/143).

(3)

a) Kutenai (isolate; British Columbia, Canada and Idaho/Montana, USA; Dryer 2013)
ʔat=u **qa** ʔiknuquk-ni.
HABIT=1SUBJ NEG smoke(tobacco)-INDIC
'I don't smoke.'

b) Kresh (Central Sudanic, Nilo-Saharan; Sudan/Central African Republic; Brown 1994: 165)
Kôkó ãmbá gõkó **ˊdĩ**
Koko he.hit Goko NEG
'Koko did not hit Goko.'

c) Hdi (Chadic, Afro-Asiatic; Cameroon and Nigeria; Frajzyngier 2002: 380)
ɗvà **'á** xdí-xà tá l'école **wù**
like NEG Hdi-PL OBJ school NEG
'The Hdi (people) do not like school.'

d) Mupun (Chadic; Nigeria; Frajzyngier 1993: 353)
(ba) kə̀ n=se lua nyer **kas**
NEG PERF 1SG=eat meat bird NEG
'I did not eat the bird meat.'

e) Gunbalang (Gunwinyguan; Northern Australia; Harris 1969: 35)
ngayi **ngarra**-kirta-**ng**
1SG 1SG.NEG-go-PAST.NEG
'I didn't go.'
ngayi **ngunta** korro-kenta **ngarra**-kirta-**ng**
1SG NEG LOC.TO-there 1SG.NEG-go-PAST.NEG
'I didn't go down there.'

This indicates that roughly one in seven languages has some kind of systematic bipartite/discontinuous standard negation pattern, compared to a clear majority with a single preverbal or postverbal negator. Conversely, between 83-86% have a single negator in other data sets (van der Auwera and Krasnoukhova 2020), which prompts us to ask why single negator negation is much more common than bipartite negation. Before answering this question, however, we need to look into the various grammaticalization paths of double negation.

1. 2. The many paths to double negation

From a grammaticalization perspective, bipartite or double negation emerges through a limited but recurrent set of diachronic pathways rather than through a single invariant cycle. A central insight of recent work is that many languages possess lexical or pragmatic devices that reinforce negation, but only some of these are subsequently reanalyzed as structural components of the negation system. The development of a second negator (NEG2) is therefore neither inevitable nor uniform across languages (Breitbarth et al. 2010; van der Auwera & Krasnoukhova 2020). Breitbarth et al. (2010) argue that the emergence of new negators typically proceeds through two stages: first, a minimizer or generalizer becomes a negative-polarity expression; second, this expression may be reanalyzed as a marker of sentential negation. Crucially, many developments stop at the first stage and never proceed further.

One common source of NEG2 is **minimizers**, i.e. expressions denoting a minimal quantity such as 'step', 'drop', 'crumb', or 'thing'. Initially these occur as optional reinforcers in negative contexts, but they may later be reanalyzed as part of the negation construction (Breitbarth et al. 2010). The classic example is French *pas* 'step', illustrated in (4), which developed from a scalar minimizer into an obligatory postverbal negator before ultimately replacing the original preverbal marker *ne* in colloquial French (Jespersen 1917: 7; Breitbarth et al. 2010; Lindblom 2013: 5).

(4)

a)	Jeo	ne	di		*Old French*
	1SG	NEG	say.PRS.1SG		
	'I do not say'				
b)	Je	ne	dis	pas	*Modern Standard*
	1SG	NEG1	say.PRS.1SG	NEG2	*French*
	'I do not say'				
c)	Je	dis	pas		*Modern colloquial*
	1SG	say.PRS.1SG	NEG2		*French*
	'I do not say'				

Related to minimizers are **focus-sensitive reinforcers** expressing meanings such as 'even' or 'at all'. These strengthen denial without necessarily becoming negators themselves. For example, Tamasheq *wæla* 'even, at all' occurs together with the negator

wər in (5), reinforcing the negative meaning and illustrating an incipient stage of negation reinforcement (van Gelderen 2011; Heath 2005: 589).

(5)	wər	i-ja	wæla	əndərræn	*Tamasheq*
	NEG	3MSG-be.done	even	little	
	'Nothing happened at all'				

A second major pathway involves indefinite pronouns and negative-polarity expressions. Breitbarth et al. identify generalizers such as 'thing' and 'anything' as particularly common sources of new negators, while emphasizing that most such expressions never progress beyond negative-polarity status. Welsh nevertheless provides a well-known case where this development did occur. Middle Welsh employed the preverbal negator *ny*, while Modern Welsh uses *ddim*, originally an indefinite expression meaning roughly 'anything' or 'at all', as the principal marker of negation (Willis 2006: 63), see (6). Other examples of phrasal indefinites being reanalyzed as negatives come from English, Celtic, Greek, Romance, and to some extent, Slavic (van Gelderen 2011).

(6)	a)	…**ny**	wnn	i	pwy	wytti	*Middle Welsh*
		NEG	know	1SG	who	are-2SG	
		'…I don't know who you are'					
	b)	Wn	I	**ddim**	pwy	wyt	ti	*Spoken Welsh*
		know	1SG	NEG	who	are	you	
		'I don't know who you are.'						

A similar development is found in Moroccan Arabic. In Standard Arabic, *mā* functioned as the negator ('not') while *šayʾ* meant 'thing/anything'. The frequent occurrence of *šayʾ* in negated expressions (*mā … šayʾ* 'not … anything') led to its reanalysis as the postverbal negative marker *-š* in Moroccan Arabic, yielding the bipartite pattern *ma … š* (Benmamoun 2000, cited in Bejja & Dkhissi 2023). See example in (7) (Bejja & Dkhissi 2023: 61).

(7)	a)	qrit	had	le-ktaab	*Moroccan Arabic*
		read-PAST	this	the-book	
		'I read this book'			
	b)	**ma**-qrit-š	had	lə-ktaab	*Moroccan Arabic*
		NEG-read.PAST.1SG-NEG	this	the-book	
		'I did not read this book'			

Beyond minimizers and indefinites, a third source domain is attested that may develop into second negators: discourse-pragmatic particles associated with denial, correction, or contradiction. Brazilian Portuguese provides such an example; alongside ordinary

preverbal negation (*não V*), many varieties permit *não V não*, where sentence-final *não* functions as a discourse-sensitive NEG2 associated with the rejection of an activated proposition (Schwenter 2005), see (8). Table 1 summarizes attested grammaticalization paths to second negators.

(8) A Cláudia não veio à festa não. *Brazilian Portuguese*
DEF Claudia NEG1 came to party NEG2
'Claudia didn't come to the party.'

Source domain	Typical meaning before grammaticalization	Representative example
Minimizers	'step', 'crumb', 'drop', 'thing'	French *pas* 'step'
Indefinites / NPIs	'anything', 'thing', 'nothing'	Welsh *ddim*, Arabic *šayʾ* > *-š*
Discourse particles	denial, correction, contradiction	Brazilian Portuguese sentence-final *não*

Table 1. Attested grammaticalization paths to second negators

The Hausa sentence-final negator *ba* (see examples in (2) and in section 2) appears to differ from the best-attested sources of second negators discussed above. Previous analyses have connected it either to existential negation (*baabùu/bâa* 'there is no') or to the sentence-final polar interrogative tag *ba/bâa* (Newman 2000, 2022). Although neither negative existentials nor polar-question particles are established sources of NEG2 in the Jespersen Cycle literature, both belong to the broader domain of propositional polarity. Negative existentials are well known to grammaticalize into markers of standard negation through the Negative Existential Cycle (Veselinova 2014), while interrogative particles encode a speaker's commitment to the truth value of a proposition. More generally, studies of bipartite negation have emphasized the close relationship between negation and polarity. Bejja and Dkhissi (2023), for example, analyze Moroccan Arabic discontinuous negation in terms of interacting polarity and negation features, arguing that negation fundamentally operates by reversing the polarity value of a proposition. Likewise, van Gelderen (2011) notes historical connections between negation, focus, and polarity-sensitive interrogative markers.

Viewed from this perspective, the clause-final position of Hausa NEG2 is particularly suggestive. Unlike minimizers such as French *pas* or indefinite expressions such as Welsh *ddim* and Moroccan Arabic *-š*, Hausa *ba* occurs at the right edge of the negated domain, effectively bracketing the proposition together with the preverbal negator. This distribution is consistent with a scope-marking or polarity-sensitive function, whereby NEG2 signals the boundary of the proposition whose truth value is being reversed. While the precise diachronic source of Hausa *ba* remains unresolved, the available evidence suggests that it may have originated in a polarity-related construction rather than through the minimizer or indefinite pathways most commonly associated with

Jespersen's Cycle. If correct, Hausa would represent a less familiar route to bipartite negation and provide further evidence that double-negation systems can emerge from multiple diachronic sources.

1. 3. Regional clustering

Not only is single negation more common, but bipartite negation is also regionally clustered across the world's languages (Vossen 2016). There are areal and family-level tendencies in how NEG2 and related grammaticalization paths occur, even though the underlying processes themselves are typologically widespread and not confined to a single region. The broad patterns that emerge from typological and diachronic research suggest clustering by language family, contact zones, and areal diffusion rather than purely random distribution (Krasnoukhova et al. 2023; Lucas 2009).

The classic development associated with bipartite negation often referred to as Jespersen's cycle (Meillet 1921; Dahl 1979) is historically and areally prominent in Indo-European, and especially Romance, languages (e.g., French *ne … pas*, Ladin *ne … nia*; Lindblom 2013) and often documented in Afroasiatic languages (e.g., varieties of Arabic and Berber) where a postverbal element joins or replaces an older negator. This pattern has been described in historical European contexts and in Afroasiatic contexts where language contact may have reinforced similar structures (e.g., bipartite negation spreading via contact between Coptic and Arabic; Lucas 2009). We already saw an example from Moroccan Arabic in (7). As for Berber, van Gelderen points out that 'all (Northern) Berber dialects have a preverbal negative element *ur/wer* and […] most have an optional postverbal element that is different in different dialects' (2011: 306; Ouali 2003: 245). See examples in (9)-(11).

(9)	ur	ssex	(sha)		*Tamazight*
	NEG1	drink-PF.1SG	NEG2		
	'I didn't enter.'				
(10)	ur	kshimegh	(ara)		*Taqbaylit*
	NEG1	entered.PAST.1SG	NEG2		
	'I didn't enter.'				
(11)	u-sn	twshi	(sha)	arbi	*Tarifit*
	NEG1	give.PAST.3SG	NEG2	grass	
	'She didn't give them grass.'				

As mentioned, similar structures are also found in Coptic (see (12)) and have been argued to have influenced the emergence of bipartite negation in Egyptian Arabic through language contact, with subsequent spread across parts of North Africa (Lucas

2007, 2009; Lucas & Lash 2010; Breitbarth et al. 2010: 158). The second negator *an* is believed to be derived from Late Egyptian *iwnʾ* 'indeed, certainly'.

(12)	ən	ti-sooun	an	pe-hoou.	*Coptic*
	NEG1	I-know	NEG2	the-day	
	'I do not know the day.'				

Certain regions, particularly South America, show a higher incidence of postverbal or clause-final negators, which are often the product of internal innovation or contact in language areas with SOV word order or clause-final preferences (as observed in northern South American families) and may develop through grammaticalization of verbs like *finish* or existential verbs into negators, a pathway related to the "negative existential cycle" (Croft 1991). Development of a second negator can further be linked to these languages' morphological history rather than to following a uniform global cycle. In Tujia (Sino-Tibetan), while there was only one original negator, other negators arose from fusion of negators with adjacent elements (Lu et al. 2020).

It has been proposed that "negation strategies each have their own focus area" (Krasnoukhova et al. 2023). The emergence of such regional clusters is most plausibly explained by shared genealogical history and language contact, which facilitate the diffusion of particular negation strategies. The present study does not challenge this view. Rather, it addresses a different question: why some bipartite negation systems persist whereas others disappear. I propose that, in addition to historical factors, the long-term stability of bipartite negation may be influenced by the cognitive demands it places on speakers during online language processing. If bipartite negation imposes greater processing costs than monopartite negation, such pressures could contribute to its repeated loss once it has arisen, helping to explain why bipartite systems remain geographically restricted and typologically uncommon despite their recurrent independent emergence.

1. 4. Processing limitations may affect linguistic structure

Within the usage-based tradition, linguistic structure is viewed not as independent of language use, but as emerging from repeated patterns of use over time. In particular, Bybee (1985) argued that frequency of use is itself a major force shaping grammatical structure and diachronic change, a view that has subsequently received support from research in phonology, morphology, syntax, language acquisition, and grammaticalization (Diessel 2007). The present study extends this usage-based perspective by asking whether another aspect of language use—the cognitive demands imposed on speakers during online processing—may likewise contribute to the distribution and long-term stability of negation patterns. Specifically, I argue that that to understand negation typology, one must also identify the cognitive costs and benefits

of how each negation type is processed: the structure and placement of negators influence working-memory demands during sentence comprehension and, consequently, the processing costs associated with different negation systems. These cognitive pressures may in turn affect the diachronic persistence of certain negation strategies.

1. 4. 1. Working memory and open dependencies

As we saw in examples (1) and (2), Russian resolves negation interpretation almost immediately upon encountering the negator, Hausa delays full confirmation until the clause-final NEG2. These structural differences are likely to influence how negation is processed. An insight that sets single vs. discontinuous negation apart is that given what is known from extensive research on open dependencies (Gibson 1998, 2000), a delayed NEG2 is likely to incur additional processing costs.

Working memory (WM), the cognitive system that temporarily holds and manipulates information needed for ongoing tasks (Baddeley and Hitch 1974) is a limited resource able to hold 7 ± 2 items at a time (Miller 1956), later adjusted to ~ 4 *chunks* (Cowen 2001). A chunk is a meaningful unit of information that is treated as a single item in working memory, even though it may consist of several individual elements. For example, the letters C A T can be remembered as one chunk; the word *cat*, and the numbers 1 9 4 5 can be recognized as the year *1945*. Importantly however, WM capacity is not limited to a fixed number of chunks *regardless of their size* (Thalmann et al. 2019). This flexibility has clear consequences for syntactic dependency processing. Chunking allows multiple elements to be compressed into a single representational unit by exploiting structure, regularity, or prior knowledge. This reduces item count, which is why WM performance improves when chunking is possible. However, as Thalmann et al. (2019) emphasize, this does not mean that chunking is cost-free: Larger chunks are more complex internally, they require more processing to construct and maintain, accessing internal elements of a chunk is slower and noisier, and chunks compete for attentional resources. Hence, WM capacity is flexible, but limited by representational complexity, not just by number. This knowledge interlaces neatly with linguistic syntax.

Syntax and working memory are interdependent phenomena. Open dependencies in syntax (e.g., wh-dependencies, agreement, bipartite negation) behave like unfinished commitments in WM, and, critically, each open dependency occupies attentional and retrieval resources, not just *a slot* (as would be predicted if the mind did not engage in chunking). What this also means is that working memory load during sentence processing is structure-driven, not just based on the number of stored items (Yadav et al. 2022). It counts open syntactic commitments, unresolved dependencies, and structural predictions. In this way, syntax shapes WM demands, and WM constraints

shape syntactic processing. They are distinct mechanisms but tightly linked and mutually constraining. Although theories differ in whether these limitations are attributed primarily to processing capacity, attentional focus, or retrieval mechanisms (e.g., Just & Carpenter 1992; Cowan 2001; Lewis et al. 2006), they all predict that increasing structural complexity imposes greater processing costs. The implications of this general prediction for bipartite negation are discussed below.

1. 2. 2. Negation-induced forgetting

Negation-induced forgetting (NIF) refers to the reliable finding that information processed under negation is less accessible in later memory than comparable information processed affirmatively. Empirical studies show that repeatedly negating a property or event (e.g., responding that a glass of wine was *not* red after seeing someone drink white wine) leads to poorer subsequent memory for the associated episode as a whole (that someone drank wine at all), than repeatedly affirming it, despite equivalent exposure (Mayo et al. 2014). This asymmetry highlights that negation is not merely a weaker form of affirmation, but involves qualitatively distinct cognitive operations. Crucially, NIF is theoretically grounded in psycholinguistic research on negation comprehension, particularly the work of Barbara Kaup and colleagues, who demonstrated that negation is processed via a two-step mechanism: comprehenders first activate a representation of the non-factual state of affairs (e.g., a stripy ladybird for "This ladybird is not stripy") and then suppress or deactivate it in favor of the actual situation (e.g., a dotty ladybird) (Kaup & Zwaan 2003; Kaup et al. 2006). Consistent with this account, Kaup's studies show that the accessibility of negated concepts drops below baseline shortly after comprehension and remains less accessible in long-term memory, indicating active inhibition rather than delayed integration. From this perspective, NIF can be understood as the downstream memory consequence of the same inhibitory mechanisms required for online negation processing: negation initially brings a concept to mind only to subsequently suppress it, resulting in weaker long-term representations. These findings have important implications for understanding linguistic typology and change, linking semantic interpretation, inhibitory control, and memory dynamics within a unified explanatory framework.

2. Hausa Negation

2. 1. Hausa discontinuous negation in brief

Apart from in subjunctive and progressive negated clauses, Hausa employs a two-component negation consisting of an initial low-tone *bà(à)* and a final high-tone *ba*,

enveloping the negated material (Newman 2000: 357). Negated sentences have the structure:

SUBJ- Noun [NEG1] TAM VP (IO) (DO) [NEG2] (ADV)

The tense-aspect marker (TAM) agrees with noun subjects in person and number, which means that when the subject is represented by a noun, subjects are redundantly specified as nouns *and* as pronouns. Without a noun subject TAM becomes the functional subject and the first negator *bà(à)* (NEG1) is positioned at the leftmost edge of the clause. A specific set of negative TAMs (short vowel, low tone) different from the affirmative TAMs (long vowel, high tone) likely cue negation as well. See table 2.

Person		Negative TAM	Affirmative TAM
1		bà nì / bàn	naa
2	SG	bà kà (M)/ bà kì (F)	kaa (M) /kin (F)
3		bài (M) /bà tà (F)	yaa (M)/ taa (F)
1		bà mù	mun
2	PL	bà kù	kun
3		bà sù	sun

Table 2. Tense aspect markers in Hausa perfective aspect (PF). Low tone in grave accent (`) high tones unmarked, falling tone with circumflex (^).

(13) a) Yaarinyàà **taa** daawoo *Hausa*
Girl TAM:F.SG.PF return.here
'The girl returned.'

b) Yaarinyàà **bà** **tà** daawoo **ba** *Hausa*
Girl NEG1 TAM:F.SG return.here NEG2
'The girl did not return.'

NEG2 typically occurs behind the verb phrase after core arguments like locative goals and direct and indirect objects. Simple adverbs of time, place or manner are usually placed before NEG2 (14a), but before adverbial clauses (14b), while some common temporal adverbs like *gòòbe* 'yesterday' or *jiyà dà yâmma* 'yesterday afternoon' may occur before or after NEG2 "with essentially the same meaning" (Newman 2000: 358).

(14) a) **Bàà** mukàn fita tsakaɾ̃ raana **ba**. *Hausa*
NEG1 1.PL.HABIT go.out midday NEG2
'We don't normally go out at midday.'
(Newman 2000: 358)

b) **Bà** zaa mù ƙaaràà masà àbinci **ba** *Hausa*
NEG1 FUT 1PL increase IO.3M food NEG2

sabòòda shii malààlàcii nèè

because 3M.SG.IND lazy COP.M
'We will not bring him more food because he is a slacker.'
(Newman 2000: 358)

2. 2. Structural features alleviating long distance dependency negation

2. 2. 1. Consecutive affirmative TAMs within negation scope

The two negators mark the scope of the negated material. Within this scope, however, if verbal predicates are chained in a sequence of coreferential subjects, NEG1 and NEG2 envelopes all predicates while intervening subject TAMs appear in the affirmative form (15a-b), irrespective of the number of TAMs (15b). A formal analysis might propose that only the TAM in the matrix clause should appear as a negative TAM, however evidently in online processing, an effect of serial affirmative TAMs within the negated scope could facilitate negation processing by preventing interpretations of too early negation termination (15a-b). This analysis is supported by consistent placement of the inherently negative *tùkùna* 'not yet' *after* NEG2 (Newman 2000: 358). This feature could serve to minimize redundant and potentially disrupting negative cuing elements complicating negation interpretation.

(15) a) **Bà** mù ci **mun** shaa **ba**. *Hausa*
NEG1 1PL.PF eat 1PL.PF.AFF drink NEG2
'We didn't eat and drink.'
(Newman 2000: 358)

b) **Bà** tà shaarèè ɗaakìì
NEG1 3SG.F.PF.AFF sweep room

taa yi wankaa **taa** tàfi
3SG.F.PF.AFF do wash 3SG.F.PF.AFF travel

makarantaa **ba**
school NEG2
'She didn't sweep the room, she didn't bathe, (and) she didn't go to school.'

Alternatively, each predicate may be enveloped by its own set of *bà(à) … ba*; however, then the chaining applies to separate *sentences*, not verbal predicates (Newman 2000: 360).

2. 2. 2. Deletion of adjacent NEG2 markers

Morphological haplology refers to the situation where one of two abutting NEG2s is deleted, e.g., when one negated sentence occurs within another negated sentence, and a single *ba* does "double duty" (Newman 2000: 359); in (16), * indicates non-occurrence.

This could serve a similar psycholinguistic function as within-negation-scope affirmative TAMs: to signal the perception of non-termination of negative scope.

(16) a) ***[Bàn** ga yaaròn dà *Hausa*
NEG1.1SG see boy.DEF REL

[bài tàimàki Laadìì **ba]** **ba]**
NEG1.3SG.M help Ladi **NEG2** **NEG2**

b) **Bàn** ga yaaròn dà *Hausa*
NEG1.1SG see boy.DEF REL

bài tàimàki Laadìì **ba**
NEG1.3SG.M help Ladi **NEG2**
'I didn't see the boy who didn't help Ladi.'

Crucially, NEG1 is never subject to haplology, even if, logically, conditions are met (17). Neither does NEG2 deletion happen before a NEG1 initial abutting clause, or when the phonologically similar question particle *bâa* follows immediately after NEG2 (18), thus excluding *phonological* haplology.

(17) [Yaarinyàr̃ dà bà tà hanà mu yi *Hausa*
Girl.DEF REL NEG1 3SG.F prevent 1PL do

barcii **ba]** **[bà** tà zoo ba]
sleep **NEG2** **NEG1** 3SG.F come NEG2
'The girl who did not prevent us from sleeping did not come.'

(18) a) Shii nèe direebàn bài *Hausa*
3SG.M.IND COP.M driver.DEF NEG1.3SG.M

zoo **ba,** **bâa?**
come **NEG2** **QP**
'Is he (not) the driver who didn't come?'

2. 3. Variable NEG2 placement truncates negation scope

In most cases, the negated material and enveloped material coincide, e.g., in verb phrase negation (Newman 2000: 357; Zimmermann 2008). Under certain conditions, however, the words physically bracketed by NEG1 and NEG2 do not harmonize with the semantic scope of negation. Either the scope of negation can be narrower than the expanse of the negation markers, or it can be wider. The first case applies when a constituent like the subject, object, or an adverbial is focused; the scope of negation will then be interpreted as narrowly negating only the focused element, even if the NEG2 is placed at the far end of the clause (19).

(19) [**Bàa** Tàlaatù tà zàgee shì **ba**. *Hausa*

NEG1 Talatu 3SG.F insult him NEG2
'**It was not Talatu** who insulted him.' (Newman 2000:187)

According to Hausa linguists, "Sentence negation occurs with overtly fronted focus constituents and *has the semantic effect of narrowly negating the focus constituent only*" (Zimmermann 2008, my emphasis; Newman 2000: 364).

Another mismatch relates to a notable flexibility of the second negator (Newman 2000), but with the opposite effect: the two negators envelope *less* than their negated scope. Normally, the second negator is situated between core and external arguments (adverbials), as shown in 2.1., however when an embedded sentence following a negated object is long or cumbersome (Mustapha Ahmad p.c., 2025), NEG2 may be moved forward and precede it. This within-scope – outside-brackets material can be 1) a relative sentence, 2) an adverbial, or 3) an indirect question (Newman 2000: 359), see examples in (20)-(22). Surprisingly, the preference for an early NEG2 can even split a constituent in two halves, as demonstrated in (23) (example from Crysman 2010: 271). The choice, according to Newman (2000), depends on "the length of the complement", who provides the sentences in (20)-(22). (The b) sentences are identical in meaning to those in a).)

Embedded relative dependent clause:

(20) a) [**Bàn** ji daaɗii [dà kukà shaa biyàà] **ba**.]
NEG1.1SG.PF feel pleasure REL 2PL.REL drink beer NEG2

b) [**Bàn** ji daaɗii **ba** [dà kukà shaa biyàà].]
NEG1.1SG.PF feel pleasure NEG2 REL 2PL.REL drink beer
Both: 'I am not happy that you drank beer.'

Embedded subjunctive dependent clause:

(21) a) [**Bài** kàmaatà [Tankò yà biyaa hàraajìì **ba**.]
NEG1.3M.PF fitting Tanko 3M.SUBJ pay tax NEG2

b) [**Bài** kàmaatà **ba** [Tankò yà biyaa hàraajìì].]
NEG1.3M.PF fitting NEG2 Tanko 3M.SUBJ pay tax
Both: 'It is not fitting that Tanko pay taxes.'

Indirect question:

(22) a) [**Bài** gayà minì [koo nawà zân biyaa **ba**].]
NEG1.3M tell DAT.1SG QP how.much FUT.1SG pay NEG2

b) [**Bài** gayà minì **ba** [koo nawà zân biyaa].]
NEG1.3M tell DAT.1SG NEG2 QP how.much FUT.1SG pay
Both: 'He didn't tell me how much I should pay.'

Object within relative clause (object marked in italics):

(23) a) [**Bà sù** yi sallàà tàare [dà [*mutàànee* ***ba***
NEG1.3PL do prayer together with people NEG2

	[dà	*sukà*	*zoo*	*masallaacii*]]].]		
	REL	3PL.REL	come	mosque		
b)	[**Bà sù**	yi	sallàà	tàare	[dà	[*mutàànee*
	NEG1.3PL	do	prayer	together	with	people

[dà	*sukà*	*zoo*	*masallaacii*]]]	**ba**.]
REL	3PL.REL	come	mosque	NEG2

Both: 'They didn't pray together with the people who came to the mosque.'

In (20b), the relative clause left outside negation brackets functions as a direct object in the main clause. Without the information provided in the relative clause the reason for the negated state cannot be grasped and so should fall under negation scope as in (20a), where scope and negator placement coincide. A similar situation applies in (21b). The embedded clause is functionally the direct object of the main clause and effectively is what is under negation; still NEG2 is allowed to preempt the negated material. Likewise, the indirect question is a mandatory part of the main clause, a core constituent, but falls outside of negation brackets. The most astounding example, however, is (23b), in which NEG2 effectively disconnects the direct object, of which *mutàànee* 'people' is the head, from its adjoining relative clause.

Counting the number of sentential constituents, it is interesting to note that core constituents amount to up to four items (Subject/TAM – VP – IO – DO), and that it is the last "chunk" that is compromised, harmonizing with what was discussed above on working memory limits. Noteworthy is the fact that although a constituent is "severed", NEG2 landing site is not random but syntactically motivated between the head and its adjunct. That is, it lands at *the nearest juncture*.

The inclination of moving NEG2 forward in the sentence can be dialectal; in the case of embedded interrogative clauses, an early cued NEG2 is preferred in Western Hausa (Newman 2000: 359). This suggests that early placement of NEG2 has stabilized as a grammatical feature in this dialect and therefore represents a diachronic change.

3. Russian negation: compact and contiguous

3. 1. Contiguity with negated material and within composite component negators

The core sentential negator in Russian is the particle *ne* (не), which is morphosyntactically a clitic-like particle that immediately precedes the lexical host it negates, see example in (1') (repeated here for convenience):

(1')	Ja	ne	znaju	*Russian*
	1SG	NEG	know.1SG.PRS	

‘I don’t know’

When negation combines with negative indefinites (negative concord), the specialized negative pronouns (e.g., *nikogo/никого* ‘no-one/anyone-GEN’, *nikogda/никогда* ‘never’) co-occur with *ne* while the clausal negator keeps the same adjacent position before the verb, as in (24).[2]

(24)	Ja	nikogo	ne	videl	*Russian*
	1SG	nobody.GEN	NEG	see.PAST.M.SG	
	‘I didn’t see anyone.’				

Negation targets other categories with the same adjacency: infinitives take *ne* directly before the infinitive form, cf. (25), and adjectives/nouns are negated with *ne* immediately before the adjective, (26a), or noun, (26b):

(25)	On	ne	xočet	čitat’.	*Russian*
	3SG.M	NEG	want.3SG.PRS	read.INF	
	‘He does not want to read.’				

(26)	a)	On	ne	gotov	*Russian*
		3SG.M	NEG	ready.M	
		‘He is not ready.’			
	b)	On	ne	drug.	
		3SG.M	NEG	friend	
		‘He is not a friend’			

From these examples, it seems that Russian follows a general trend formulated in Dahl (1979) about Jespersen (1917) where:

1) Negation tends to be placed early in the sentence, and
2) Negation tends to be placed immediately before the verb

Other negation constructions may be evaluated for potentially possessing discontinuous status. A distributive negation in Russian is the *ni…ni…* “neither … nor” construction, which realize an emphatic negation. These *ni*-items are formally discontinuous (they appear on each conjunct) but crucially immediately precede the nominal or adverbial they modify (e.g., *ni ryby ni mjasa* ‘neither fish nor meat’; *nikuda ne* ‘to nowhere’ in sentences such as *on nikuda ne šël* ‘He was not going anywhere’). Functionally, *ni-*

[2] Note that throughout this paper, *double negation* refers to bipartite (discontinuous) standard negation, in which two grammatical markers of sentential negation (NEG_1 and NEG_2) jointly express a single negated proposition (e.g., French *ne ... pas*, Hausa *bâ ... ba*). This should be distinguished from **negative concord**, in which only one element functions as the sentential negator while accompanying negative indefinites (n-words) depend on that negator for their interpretation. Thus Russian *Я не знаю ничего* (‘I don't know anything’) is a case of negative concord rather than bipartite negation: *не* is the sentential negator, whereas *ничего* is a negative indefinite. Likewise, colloquial English *I didn't do nothing*, traditionally referred to as "double negation," is analyzed in modern linguistic typology as negative concord.

intensifies or extends the scope of the clausal negation while respecting the surface adjacency of negators to their hosts. Strictly speaking, this construction does not count as a distributed *single* negation (Li 2019: 9), since the negators here negate separate clausal or phrasal parts. This becomes evident when looking at Hausa, where the equivalent negating verbal actions uses two sets of distributed negators, not one, sometimes adding *kuma* 'also': [***Bài*** *ga koomee* ***ba]***,(*kuma*) [***bài*** *jii koomee* ***ba***] 'He neither saw nor heard anything', and negated nouns use an existential *bâa/baabùu* 'there is not', comparable to Russian *net* (НЕТ), e.g., ***bâa*** *yàboo* ***bâa*** *fàllasàa* 'Neither praise nor blame', with negators immediately preceding negated material.

Distributive negation with a single negated scope does occur in Russian, but with the semantic addition of emphasis in the *ni ... ne* construction, as illustrated in (27). The quantified expression *ni odnoj devočki* ('not a single girl') functions as a scalar minimizer, referring to the smallest possible quantity. Unlike the ordinary neutral negative indefinite *nikakix devoček* ('any/no girls'), which simply expresses negation, *ni odnoj devočki* adds emphatic scalar force ('not even one'). In this respect it resembles historical French *pas* ('step'), reinforcing the negation while remaining a lexical expression rather than developing into a neutral second negator (Lindblom 2013: 4-5; Breitbarth et al. 2010). Russian thus illustrates another potential source of NEG2 that has not undergone the final stage of Jespersen's Cycle.

(27) *Russian*

V	ėtom	li	klube	vy
in	this.M	QP	club.M.LOC	2PL
ni	odnoy	devočki	ne	znaete
NEG	one.F.GEN.SG	girl.F.GEN.SG	NEG	know.2PL

'Is it in this club that you don't know a single girl?'

(Brown and Franks 1995: 272)

Many second negators attain their negative semantics from cooccurrence with an original negator, by usage-based association. In Russian, case marking of the direct object in the genitive is an associated with negation, known as the *Genitive-of-Negation* (Gen-Neg). Direct objects that in affirmative clauses would be case-marked accusative shifts to genitive when the verb is negated, for no other reason than occurring in a negative construction. The direct object then receives an indefinite, non-specific, or absent/non-existential reading, as opposed to definite, specific, or present in the accusative, see (28). Importantly, both cases are allowed, but accusative is marked.

(28) *Russian*

Ivan	ne	čitaet	žurnaly/ žurnalov
Ivan.NOM	NEG	read.3SG.PRS	magazines.ACC / -GEN

'Ivan isn't reading the magazines / any magazines.'

Indefinite readings of direct objects relates cross-linguistically to negative constructions. In Bantu and Oceanic languages as well, noun phrases under negation are indefinite or

non-referential (Miestamo 2005: 208; Miestamo et al. 2022). This applies in Hausa too, see (29). Zimmermann (2008) points out that these notions are conceptually incompatible: "The bare object NP *hùulaa* 'cap' in [29] cannot have a specific reading *and* take scope over negation" In Hausa, these objects are not overtly marked; referential nouns would be suffixed -`ř/-ǹ 'masc./fem.'.

(29)	Audù	**bài**	sàyi	hùulaa	à	kàasuwaa	**ba**.	*Hausa*
	Audu	NEG1.3SG.M	buy	cap	at	market	NEG2	
	'Audu didn't buy a cap in the market.'							
	*'There is a (certain) cap that Audu didn't buy.'							

Genitive direct objects signal unaffectedness or partial affectedness, an interpretation in accordance with the gen/acc alternation in many Circum-Baltic languages (Miestamo et al. 2022), of which a non-occurring action would be the ultimate prototype in a low-transitive construction (Hopper and Thompson 1980).

Repeatedly encountering *ne* before a verb may shape expectations for the kinds of objects and quantifiers that follow. Genitive objects might therefore come to be associated with – and potentially signal – negation in speakers of Russian, which may be even more crucial when objects are fronted (see 30a-b).

(30)	a)	Ljudej	ja	**ne**	videl.		*Russian*
		people.GEN.PL	1SG	NEG	saw		
		'People did I not see.'					
	b)	Ja	ne		videl	ljudej.	
		1SG	NEG		saw	people.GEN.PL	
		'I didn't see (any) people.'					

Repeated exposure to genitive-marked objects in negative clauses may lead speakers to associate genitive case with negation, an association confirmed experimentally by Kazanina (2017), who shows that Russian speakers process genitive objects as strong predictors of an upcoming negation. At first sight, this resembles the early stages of Jespersen's Cycle, since indefinite expressions are well-attested cross-linguistic sources of second negators (Breitbarth, Lucas & Willis 2010; van Gelderen 2011). However, Breitbarth et al. (2010) argue that grammaticalization into a new negator is frequently blocked when the candidate element retains overt case morphology. Case marking continually confirms the noun's status as an argument of the verb, making reanalysis as an independent negative-polarity marker—and ultimately as a sentential negator—considerably less likely. Robust case systems therefore constitute a structural constraint on the emergence of NEG2.

Russian Gen-Neg fits this prediction remarkably well. Although genitive objects acquire an indefinite interpretation in negative clauses and are strongly associated with negation both typologically and in speakers' online processing, the genitive ending

remains a productive case marker encoding argument structure, affectedness, and referential interpretation. Rather than being reanalyzed as an exponent of negation, it continues to function as case morphology. The Russian Gen-Neg construction has therefore become a highly reliable cue to negation, but not a second sentential negator.

This comparison highlights an important contrast with Hausa. Russian satisfies several semantic and psycholinguistic preconditions associated with the emergence of a second negator, yet its morphological architecture blocks the crucial reanalysis. Hausa, by contrast, shows that a suitable source can grammaticalize into NEG2 when it is structurally available for reanalysis. Together, these two languages demonstrate that the development of bipartite negation is contingent rather than inevitable.

4. Discussion: Implications of negation types for cognitive processing

In this paper I examined ongoing syntactic change in Hausa negation, focusing especially on the syntactic effects of WM constraints in the morphological dependencies of bipartite negation, contrasted with Russian negation, which hosts a single negation marker contiguous to its negated material. Several potential bipartite negators were examined in Russian, including the Gen-Neg marking of negated, indefinite objects, but which, crucially, has not grammaticalized into a new negator despite its psycholinguistic status as a negative *cue*. The Hausa case illustrates how complex interactions between working memory, dual-route sentence processing, and negation-induced forgetting can shape surface grammar in ways that illuminate the cognitive foundations of linguistic structure. We have observed a tension between maintaining a wide scope between negators and keeping processing costs low. One strategy was moving NEG2 forward is one strategy; keeping TAM markers in the affirmative mode up until NEG2 closes negation scope (in the case of multiple predicates), is another, possibly to prevent the occurrence of "false closures". These two strategies in concert aid lowering processing costs of bipartite negation. In the following, however, I shall focus on the tension between WM (maintenance) and focal NIF effects and discuss whether these aspects of memory could have an effect on negation typology.

4. 1. Working memory constraints and long-distance dependencies

Hausa bipartite negation patterns provide an informative testing ground for understanding how general working-memory constraints interact with sentence-level processing strategies. As seen in many languages with discontinuous dependencies, Hausa negation involves a temporally extended relation between discontinuous negators. The temporal distance between these two elements creates a "holding interval" in which the presence of an unfulfilled dependency places exceptional demands on

language users' working memory. The observed tendency for Hausa speakers to advance NEG2 to structurally earlier junction points, sometimes even interrupting syntactic constituents, suggests that this pattern is not merely an idiosyncratic morphological alternation, but rather reflects general architectural pressures in human sentence processing.

WM seeks to reduce cognitive costs. Theories of sentence comprehension hold that linguistic input is parsed incrementally and that structural commitments must be maintained in an activated state until they can be integrated with subsequent material (Gibson 1998; Lewis & Vasishth 2005). Long-distance dependencies, including filler-gap relations and bipartite morpheme dependencies, are therefore inherently costly. The Dependency Locality Theory (Gibson 2000) predicts that the integration cost of linking two elements increases with the number and complexity of intervening syntactic heads, an assumption that concurs with known WM constraints. The longer this expectation must be kept active, the greater the probability of decay, interference, or retrieval failure.

Evidence from chunking models of sentence processing further illuminates these pressures. Chunk-based frameworks (e.g., Christiansen & Chater 2016) posit that the parser groups incoming material into manageable units based on probabilistic and structural cues. When a dependency spans multiple chunks, maintaining it requires cross-chunk coordination, which is fragile and susceptible to forgetting. If NEG1 in Hausa is anchored in one chunk (e.g., TAM), and the listener perceives that the current chunk is about to close, the parser may attempt to complete the pending dependency by realizing NEG2 earlier than its canonical position. Such an early realization reduces the duration over which the first element must be actively held in WM, thereby lowering memory cost, even if it produces surface patterns that contradict idealized syntactic constituency.

These explanations become even more compelling when considered in light of dual-route processing within long-distance dependencies. Numerous findings suggest that during the maintenance of an unresolved relation, speakers keep track of both the linear sequence of material and a hierarchical set of structural expectations (Frazier & Clifton 1996; Hale 2001). When these two processing streams diverge, the cognitive load increases. In a long bipartite negation dependency, speakers must simultaneously maintain the dependency (a structural commitment) and process intervening lexical and phrasal material (a linear burden). Empirical work shows that such dual commitments amplify susceptibility to interference: as more lexical items intervene, both the retrieval of the first element and the accuracy of its syntactic representation become vulnerable to decay (Van Dyke & Johns 2012). Thus, the Hausa NEG1–NEG2 configuration is predisposed to instability simply by virtue of its distributed architecture.

4. 2. Processing as a Shaper of Grammar

Cross-linguistic evidence indicates that natural languages systematically minimize dependency length, suggesting that grammatical structure reflects pressure to reduce memory load during comprehension and production (Futrell et al. 2020). From this perspective, grammars may come to reflect what speakers can reliably plan, store, and retrieve under WM pressure, even if memory is not treated as a grammatical primitive. This logic is made explicit in cognitive and usage-based theories, where grammar is understood as *emergent from language use* and learning under domain-general cognitive constraints: WM limitations directly affect which constructions are learnable, entrenched, and stable, favoring shorter dependencies, chunked representations, and reduced hierarchical depth (Hopper 1987; Tomasello 2003; Goldberg 2006). Accordingly, Gómez-Rodríguez et al. (2022) propose that memory limitations may be "hidden in the grammar" itself. Taken together, these observations suggest that psycholinguistic and usage-based models are right in assuming that usage and general cognitive capabilities indeed have the potential to affect linguistic structure, converging on the view that memory limitations can exert genuine causal force on syntactic structure.

4. 3. Negation-induced forgetting

Combining NIF with working-memory load provides a compelling explanation for the Hausa data. If the appearance of NEG1 triggers a brief coexistence of both affirmative and negated representations, maintaining the morphosyntactic dependency until NEG2 is encountered becomes even more costly. The Hausa speaker must (1) sustain the syntactic expectation for NEG2, (2) maintain at least some semantic representation of the negated content, and (3) resolve competition between affirmative and negated interpretations. The resulting load magnifies decay, making the canonical clause-final position of NEG2 especially vulnerable to memory-based disruptions. Early placement of NEG2, therefore, can be interpreted as a cognitive strategy that reduces two forms of forgetting simultaneously: it minimizes the time during which the syntactic dependency remains open, and it rapidly confirms the negated interpretation, helping suppress the competing affirmative representation.

Under this view, the observed non-canonical placement of NEG2 is neither arbitrary nor merely stylistic. Rather, it reflects the interface between structural distance, temporal activation demands, chunking constraints, and the cognitive asymmetry between negated and affirmative representations. Long open dependencies are already difficult to maintain. When they involve negation – an operator known to by itself promote representational instability – the interplay of these factors creates a system in which early discharge of the dependency offers a measurable processing advantage. The Hausa case therefore illustrates how complex interactions between working memory, dual-

route sentence processing, and NIF can shape surface grammar in ways that illuminate the cognitive foundations of linguistic structure. However, whether bipartite or single negation is cognitively more costly – in sum – depends on whether these two negation types respond differently to NIF.

4. 4. Negation types and vulnerability to forgetting

A prediction that follows directly from what we know about negation processing, inhibition, and memory is that NIF is best understood as a consequence of *inhibitory control* (Johnson and Anderson 2004; Marko and Riečanský 2021): the comprehender must activate the negated proposition and then suppress it (Kaup et al. 2006a, 2007; Tian et al. 2010). A viable hypothesis of how this relates to single vs. double negation is: "the stronger or more focal the inhibition, the greater the downstream reduction in memory accessibility."

Given that NIF arises from inhibitory mechanisms engaged during negation processing in language (Dudschig et al. 2021a, 2021b; Liu 2020; Liu et al. 2020, 2024), drawing from neural reuse principles (Anderson 2010; Beltrán et al. 2021), languages in which negation is expressed by a single, clause-internal operator are predicted to be more vulnerable to forgetting than languages with bipartite negation, where negation is structurally distributed and can constrain interpretation earlier and more globally. Supportive of this hypothesis is that people with lower inhibitory responses (ADHD subjects) respond slower to negation than neurotypical subjects (Dudschig et al. 2021a). Testing this prediction cross-linguistically, however, remains an open empirical question, i.e., whether inhibition applies to a wider variety of negation (Dudschig et al. 2021b), and how.

4. 5. 1. Single-negator languages concentrate inhibition

In single-negator languages like Russian, negation is typically monomorphemic, clause-internal, and often syntactically and prosodically light. This means that the negated proposition is strongly activated during compositional interpretation. The burden of exclusion ("this is not the case") is carried primarily by a single operator, placing maximal weight on conceptual suppression rather than on distributed structural cues. From a cognitive perspective, this favors strong post-activation inhibition, which is exactly the mechanism that produces NIF (Beltrán et al. 2018).

Double-negator languages, by contrast, distribute negation across structure. In bipartite negation systems like Hausa (*bàà … ba*), negation is structurally distributed, edge-marked, and highly salient in the syntactic frame. This has two consequences: The listener can anticipate negation early and maintain it as a global discourse constraint, rather than computing it late as a local semantic reversal. The negated proposition *may*

then never reach the same level of full affirmative simulation before suppression, because negation is scaffolded by structure rather than resolved purely at the conceptual level. As a result, less severe inhibition of a fully instantiated affirmative simulation is required, which predicts attenuated NIF. Important to note, however, although this is a theoretically well-motivated prediction grounded in psycholinguistic models of negation, it is not yet a settled empirical fact given that there is presently little direct experimental work comparing single- vs. double-negator languages on memory outcomes.

4. 5. 2. Russian Gen-Neg may alleviate NIF

For the same reasons, the Gen-Neg in Russian is predicted to alleviate the strength of NIF, especially in configurations where the object is focused and precedes the verbal negator; functioning as an early cue partially redistributes the cognitive work of negation away from late conceptual inhibition and toward anticipatory constraint during incremental processing. As established in the NIF literature, forgetting arises when a comprehender fully activates an affirmative representation and then subsequently suppresses it once negation is encountered (Mayo et al. 2014). Crucially, Russian Gen-Neg is not semantically empty. Russian speakers treat genitive marking on direct objects as a reliable probabilistic cue to negation. The alleviating effect on NIF should be strongest when the genitive-marked object precedes *ne*. In such configurations, the object is not only processed early, it is also discourse-prominent and morphologically marked in a way that biases interpretation toward negation. This constellation maximizes the chance that negation is anticipated rather than retroactively imposed, thereby weakening the activation-then-suppression cycle that gives rise to NIF.

In sum, Gen-Neg in Russian should attenuate but not eliminate NIF. It does not function as a full negator, but still redistributes negation processing temporally, reducing reliance on late inhibitory mechanisms. This supports a broader conclusion: morphosyntactic cues to negation matter for memory, and NIF is sensitive not just to semantic negation, but to how negation is *signaled and anticipated* in the grammar.

4. 5. 3. Two competing pressures on memory: inhibition versus maintenance

The apparent NIF advantage of bipartite negation can be partially offset by the working-memory costs imposed by long-distance dependencies in bipartite systems. Whether bipartite negation ultimately *reduces* NIF relative to single negation depends on how these two forces trade off in real-time processing. The prediction that single-negator languages are more vulnerable to NIF rests on inhibitory load: late-resolving negation encourages full affirmative simulation followed by strong inhibitory effects.

Bipartite negation, by contrast, reduces this inhibition by making negation structurally salient and predictable early.

However, bipartite negation introduces a different cost requiring the comprehender to maintain a negation dependency across the clause. This maintenance taxes working memory, particularly executive and attentional resources (Gibson 1998; Lewis et al. 2006). Working-memory load does not create NIF in the same way as inhibition, but it can weaken encoding. When resources are tied up maintaining an unresolved dependency, fewer resources are available for constructing a detailed situation model, leading to shallower encoding and reduced later recall (Just & Carpenter 1992; Unsworth & Engle 2007). Crucially, this means that bipartite negation may reduce inhibition-driven forgetting while increasing resource-driven forgetting. The net memory outcome is therefore not trivial. Once working-memory costs are factored in, the simple typological prediction ("bipartite negation causes less NIF") might become susceptible to variation. Single negation implies high inhibitory effects and suppression leads to strong NIF. On the other hand, bipartite negation implies lower inhibition but higher maintenance cost, leading to potentially comparable forgetting, but *via a different mechanism*.

Thus, bipartite negation systems may not show uniformly better memory outcomes; instead, they may shift the source of memory degradation from inhibition to resource limitation. This trade-off reinforces a key point implicit in the NIF framework: memory consequences of negation depend on processing dynamics, not negation per se. NIF is therefore best understood as one outcome in a broader space where inhibition, prediction, and working memory jointly shape linguistic memory.

4. 6. Why NIF matters to negation typology

To close the loop from where we started, looking at the uneven distribution of single vs. double negation across the world's languages, why should it matter to negation typology how deeply the negated contents is forgotten? The answer is that forgetting is not the causal factor, processing is. The key point is that negation typology is not plausibly shaped by forgetting per se, but by the processing dynamics that also give rise to forgetting. NIF matters only insofar as it is a *diagnostic consequence* of how negation is computed online. There is no claim (and should be none) that languages evolve particular negation strategies *because* speakers forget negated contents. What matters is that the same mechanisms that produce NIF: activation, inhibition, prediction, and working-memory allocation, are also the mechanisms that shape real-time language processing. NIF is therefore an epiphenomenal footprint of deeper processing trade-offs, not a selective pressure in itself. In Kaup's framework, the critical variable is how much affirmative structure is built and then suppressed during negation comprehension. NIF simply reveals how extreme that suppression is.

4. 6. 1. Why depth of suppression matters for processing stability

Negation types differ in how they distribute negation cues temporally: Single negation implies later semantic reversal and a strong activation–suppression cycle. Bipartite negation involves an early structural constraint and brings about weaker suppression, but longer maintenance costs. The depth of suppression matters because strong inhibition destabilizes representations, not just in memory, but during comprehension itself. This could have consequences for discourse continuity and incremental model updating, as well as the perceptibility under noise or divided attention. Languages that rely heavily on late inhibition make comprehension more brittle under cognitive load. That brittleness is what NIF indexes.

Typology tracks communicative well-functioning, not memory outcomes. Negation typology is sensitive to how well processing works across contexts, not to long-term recall accuracy. The implications for negation typology could be this: systems that require repeated strong inhibition (as single negators do), or long-distance dependency maintenance (as in bipartite negation) each impose costs. Typological distributions reflect which cost is more tolerable across populations, discourse styles, and diachronic pathways, not which yields better memory. I hypothesize that single negation wins globally because working-memory costs are minimized, dependencies are short, and inhibitory mechanisms are already ubiquitous. Bipartite negation survives where early predictability or pragmatic reinforcement outweighs the cost of maintaining a dependency (van der Auwera & Van Alsenoy 2016), until this maintenance becomes too costly, as is the case for Hausa.

4. 6. 2. What NIF contributes to typology (and what it does not)

What NIF contributes is evidence that negation types differ in how they engage inhibition, not that one type is better remembered. So, the correct inference is that negation typology is shaped by how negation is processed, and NIF reveals the *inhibitory profile* of that processing. Therefore, NIF helps diagnose which processing pressures different negation systems impose. Stated concisely, negation-induced forgetting is not itself a driver of typological distribution, but a *measurable consequence* of the inhibitory dynamics involved in negation processing. Because negation types differ in how they distribute activation, prediction, and suppression over time, NIF serves as an index of processing stability and representational sturdiness, factors that plausibly shape the diachronic viability of negation systems.

5. Conclusion

Bipartite and single negation are unevenly distributed across regions and language families. I have looked into the processing mechanisms behind these negation strategies

and suggested they contribute to this unevenness besides other mechanisms like language contact and communicative clarity. Single negation likely induce higher inhibition costs and more severe NIF effects. By contrast, although bipartite negation is predicted to attenuate negation-induced forgetting by distributing negation cues early, the working-memory demands imposed by long-distance negation dependencies may counterbalance this advantage, yielding memory costs that arise from resource limitation rather than inhibitory suppression. On balance, these negation strategies both face memory-related challenges, which underlyingly may contribute to these systems stability or susceptibility to change.

The account proposed here is necessarily theoretical. Rather than presenting new experimental evidence, it synthesizes typological, grammaticalization, and psycholinguistic findings to formulate a cognitively motivated explanation for the relative rarity and diachronic instability of bipartite negation. The hypotheses developed here therefore invite empirical evaluation. Future work should test the predicted processing differences between monopartite and bipartite negation directly—for example, through behavioural, eye-tracking, ERP, or other online processing studies comparing languages such as Russian and Hausa. Confirmation of these predictions would provide a stronger empirical foundation for the cognitive explanation proposed here and is most welcome.

Key to abbreviations

1SG	first person singular
2SG	second person singular
3SG	third person singular
1PL	first person plural
2PL	second person plural
3PL	third person plural
ACC	Accusative
AFF	Affirmative
COP	Copula
DEF	Definite
F	Feminine
FUT	Future tense
GEN	Genitive
HABIT	Habitual
IND	Independent pronoun (emphatic)
INDIC	Indicative
INF	Infinitive
IO	Indirect object
LOC	Locative
M	Masculine
NEG, NEG1, NEG2	Negator, first negator, second negator
PAST	Past tense

PF	Perfective aspect
PL	Plural
PRS	Present tense
QP	Question particle
REL	Relative (form of TAM or relative verb)
SG	Singular
TAM	Tense Aspect Marker

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Peer-reviewed article

Discourse motivations for the gender-inclusive coordinated plural forms in Czech

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Abstract

This paper examines coordinated masculine plural and feminine plural noun phrases (MFPL constructions) (e.g., *studenti a studentky*^{MFPL} 'students'), alternative to the "generic" masculine plural form (*studenti*). Rather than simply stating that MFPL constructions are marked with explicit reference to both male and female members, this study explores whether MFPL forms have the potential to spread, and if so, how such spread might be motivated. The data suggest that MFPL constructions are emergent and compete with MPL forms. The study further discusses the types of lemmas that are most prone to MFPL use and the contexts in which the construction appears.

1. Introduction

Czech has nouns in masculine grammatical gender that are said to be unmarked with respect to biological gender (Valdrová 2017). These "generic masculine" nouns can have either a male or female referent. Thus, e.g., the generic masculine noun psycholog in the singular below can be used as a predicate nominal for the female subject Eva:

(1) Eva je dobrý psycholog (Valdrová 2017)
'Eva is a good psychologist^{GMSG}.'

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A generic masculine noun in the plural (GMPL) is said to be capable of referring to a mixed-gender group. In (2) the mountain climbers and Czechs are supposed to be inclusive of male and female members.

(2) Mezi horolezci nebyli žádní Češi (Valdrová 2017)
'Among the mountain climbers^{GMPL} there were no Czechs^{GMPL}.'

Recent experimental research, however, questions such a "generic" function in various languages. For example, Gygax et al (2008) test gender-bias in generically intended masculine nouns in French and German, using a sentence evaluation paradigm. They conclude that use of the masculine plural leads to a specifically male representation. Glim et al (2024) show that generic masculine forms in German affected neural processing of references to gender, including difficulty in accessing female referents after generic masculine nouns are used. Vela-Plo et al. find that masculine generic nouns in Spanish are interpreted as mostly referring to a group of male members, showing that they do not function as truly mixed-gender forms (2025:19).

Alternative referential expressions are proposed. Their effectiveness, however, seems to be mixed. Glim et al (2025) compare neutral processing of generic masculine plural forms vs. star forms in German.[1] They observed that neither form evoked a gender-balanced mental representation of male and female referents. In contrast, the study by Lindqvist et al (2019) finds that paired forms (he/she) and actively created gender-neutral pronouns are reported to eliminate gender-bias in Swedish compared to the generic masculine forms.

This paper is an attempt to consider the property of masculine plural and feminine plural coordinated noun phrases (MFPL constructions)[2]: e.g., studenti a studentky^{MFPL} 'students' in the cognitive grammar perspective. Rather than simply stating that the MFPL construction is marked with explicit reference to both male and female members, my aim is to explore whether it shows a potential to spread, and if so, how it might be motivated.

My claim is two-fold: first, while plural nouns are said to be similar to mass nouns that are characterized by homogeneity (Langacker 1987: 203-205), MFPL constructions are likely when the plural reference is construed as a set where individual members are profiled, foregrounding heterogeneity; second, the use of this construction clusters in solidarity-focused in-groups, but the construction is extending from socially grounded differentiation to a more schematic marker of internal diversity.

The paper consists of 3 parts. Section 2 describes the method and quantitative results. It tests whether the MFPL constructions are emergent and whether they are competing with

[1] Star forms are meant to be gender-inclusive forms with an asterisk to represent non-male gender identities in the plural (e.g., *Leser*innen 'readers'*)

[2] There are two other possible alternatives for gender neutrality: FMPL constructions (e.g., *studentky a studenti*) and neuter singular forms (e.g., *studentstvo*), which occur less frequently than MFPL. This study focuses on MFPL constructions, which could be seen as an extention of MPL (MPL forms followed by FPL forms).

MPL forms. Section 3 discusses the type of lemmas that are most prone to MFPL use and the contexts in which the construction appears. It is followed by Section 4 with conclusions.

2. Data, Method, and Results

The present study used two genre-matched subcorpora (traditional journalism) extracted from SYN2020 (Křen et al. 2020) and SYN2025 (Křen et al. 2025) (Table 1). The former contains texts from 2017-18 and the latter 2023-24.

Period covered	Size (tokens)
2017-18 traditional journalism (from SYN2020)	9,544,955
2023-24 traditional journalism (from SYN2025)	9,513,324

Table 1. Data used.

Table 2 shows absolute frequencies of MFPL forms from the two periods. I included lemmas that showed the relative frequencies above .3. MFPL constructions increased significantly from 2017-18 to 2023-24 (Fisher's exact test $p << 0.001$), rising from 6.6 to 25.1 tokens per million (≈ 3.8-fold increase)

Period	MFPL constructions (raw freq) (ipm>.3)	Total number of tokens in the corpus
2017–18	63	9,544,892
2023–24	239	9,513,085

Table 2. Aggregated MFPL forms over time.

The numbers of tokens are small, but they suggest an early stage of diffusion, showing that a new construction is perceived as new by the speech community and spreads through media over time. It is possible that this increase is in line with the innovation diffusion pattern discussed by Rogers (1995)[3].

Table 3 shows how the MP forms and MFPL constructions compete. The numbers of MPL forms reflect those lemmas appearing at least in one period.

[3] Rogers's idea broadly covers social innovations. This notion is applied to language, e.g. by Maybaum (2013).

In 2017-18, MFPL constructions accounted for .21% of all MP and MFPL realizations (63/29,639), compared to .95% in 2023-24 (239/25,162). The odds of selecting an MFPL construction rather than an MPL form are about 4.5 times higher in 2023-24 than in 2017-18 (OR = 4.50). The 95% Confidence Interval [3.41, 5.95] does not include 1, indicating that the increase is statistically robust and is unlikely to be due to chance. These results point to a substantial shift in constructional preference over time.

Period	MFPL forms (raw freq) (ipm >.3)	MPL forms (raw freq) (ipm >.3)	TOTAL MP + MFPL
2017-18	63	29576	29639
2023-24	239	24923	25162

Table 3. Frequencies of MP forms vs. MFPL constructions (Fisher's exact test p < .001).

The relationship between MP forms and MFPL constructions shows a change in progress. The shift shows that MP forms are far from being replaced by MFPL constructions, but the relationship between the two is gradually changing, with the latter on the increase.

3. Lemmas appearing in MFPL constructions

Lemmas that allowed MFPL constructions are listed in Tables 4 and 5. Table 4 lists lexical items that appear above ipm>.3 in both periods.

	2023-24 Raw freq	2023-24 ipm (>.3)	2023-24 Raw freq	2023-24 ipm (>.3)
autoři a autorky 'authors'	3	0.31	15	1.58
Češi a Češky 'Czechs'	10	1.05	19	2
herci a herečky 'actors'	7	0.73	4	0.42
hráči a hráčky 'players'	5	0.52	5	0.53
hrdinové a hrdinky 'heroes'	5	0.52	7	0.74
kolegové a kolegyně 'colleagues'	5	0.52	7	0.74
ministři a ministryně 'ministers'	4	0.42	0	(0)[4]

[4] The brackets mark the values below 0.3.

poslanci a poslankyně ‘MPs’	3	0.31	5	0.53
senioři a seniorky ‘seniors’	8	0.84	1	(0.11)
studenti a studentky ‘students’	5	0.52	15	1.58
voliči a voličky ‘voters’	3	0.31	4	0.42
žáci a žákyně ‘pupils’	5	0.52	4	0.42

Table 4. Comparison: Lemmas showing MFPL in 2017-18 and in 2023-24 (ipm > .3).

Out of the 12 types that appear in both periods, the majority of lemmas (2/3) show a rise in the frequency of MFPL constructions.

The lemmas showing the rise display a certain consistency in terms of semantics and the type of context. The most prototypical category is likely to be the “in-groups”: Czechs and colleagues (Češi a Češky, kolegové a kolegyně). These groups consist of members who are most familiar. The discourse contexts foreground the speaker’s alignment with members of the set; consequently, the set is likely to be viewed as internally heterogeneous.

In (3a) the MFPL construction appears in a context where the speaker advocates improvement in the quality of life for each member of the set. In (4a) the construction appears in a context where each colleague had a special relationship with the trade union leader. The context in each example suggest that the speaker supports the members of the set: the speaker agrees with the view that “Czechs deserve a higher pension;” the speaker presents the trade union leader as a respected individual, thereby agreeing with the colleagues, each of whom thought highly of and cared about their leader. Such an alignment-emphasized view of a set entails acknowledging each set member as worthy/unique rather than as faceless/homogeneous.

In contrast, the MPL forms in (3b) and (4b) appear in a context where the group is presented in relation to other sets: Czechs and Slovaks; and the STAN party (Starostové a nezávislí) and the other parties. The examples do not focus on the internal heterogeneity of the groups.

(3a) Pokud chce vláda zvyšovat věk odchodu do důchodu, musí mnohem více dbát na kvalitu života Čechů a Češek^{MFPL}, nejen apelem na prevenci, ale většími investicemi do oblasti veřejného zdraví. (2024)
‘If the government wants to raise the retirement age, it must pay much more attention to the quality of life of Czechs^{MFPL}, not only by appealing to prevention, but by investing more in public health.’

(3b) Po převratu v roce 1948 se řada Čechů^{MPL} a Slováků^{MPL} aktivně zapojila do boje proti komunismu. (2023)

‘After the 1948 coup, many Czechs[MPL] and Slovaks[MPL] became actively involved in the fight against communism.’

(4a) Celý život se aktivně zapojoval do odborové činnosti, dlouhá léta stál v čele odborové organizace pracovníků aparátu strany. Svými kolegy a kolegyněmi[MFPL] byl velice vážen za svou moudrost a rozhled. Každému rád ochotně pomohl řešit jeho nesnáze. (2024)
‘Throughout his life he was actively involved in trade union activity, and for many years he headed the trade union of the workers of the party apparatus. He was highly respected by his colleagues[MFPL] for his wisdom and insight. He was happy to help everyone solve their difficulties.’

(4b) Podle mého soudu by takový krok musel být vyvážen opatřeními v rozpočtovém určení daní. Co na to říkájí vaši straničtí kolegové[MPL]starostové? (2023)
‘In my opinion, such a move would have to be balanced by measures in the budgetary determination of taxes. What do your colleagues[MPL] from the STAN party have to say about this?’

The MFPL constructions for the other groups (heroes, students, authors, players, and MPs) are often set in contexts where a group is viewed as consisting of distinct individuals, i.e. where each member is individuated.

Story characters are often created to be different from one another; such differences could be underscored further by context. The MFPL construction in (5a) is set in a text where the episode titles (of a series) cause people to wonder how each character might end up. In contrast, the MPL form in (5b) represents a type: the speaker characterizes the referents uniformly as murderers.

(5a) V listopadu oznámil názvy všech dílů a nastartoval tak vlnu spekulací, kam by se vyprávění zasazené do osmdesátých let mohlo vyvíjet a jak jeho hrdinové a hrdinky[MFPL] skončí. (2024)
‘In November, he announced the titles of all the episodes, thereby kicking off a wave of speculation as to where the story set in the 1980s might evolve and how its heroes[MFPL] would end up.’

(5b) Z lidí, kteří byli masoví vrazi, dělat dneska hrdiny[MPL], to je pro mě absolutně nepochopitelné. (2024)
‘To make heroes[MPL] out of people who were mass murderers today is absolutely incomprehensible to me.’

The lemma student in the plural most often refers to gymnasium and university students5 who are expected to have their own (often liberal) opinions and/or vary in their specializations. In (6a) the MFPL construction occurs in a context where students must produce unique robots for a competition; they are creative individuals who would produce different results. In contrast, the MPL form in (6b) occurs in a context where a teacher applies the traditional teaching style to any student.

[5] The lemma is strongly collocated with *univerzita, fakulta, obor*, and *gymnazium.*

(6a) Studenti a studentky[MFPL] budou ze stavebnice LEGO MINDSTORMS programovat robota – popeláře! Úkolem je postavit a naprogramovat robota tak, aby během 90 sekund, bez jakékoliv další pomoci, vyčistil hrací hřiště. (2024)
'Students[MFPL] will program a robot from the LEGO MINDSTORMS kit – a garbage collector! The task is to build and program a robot to clean the playing field in 90 seconds, without any further help.'

(6b) Prý se tam spíš učí podle tradičního modelu, kdy pedagog přednáší většinu hodiny a studenti[MPL] jen poslouchají a nemají moc možnosti nějak reagovat na to, co se právě řeší. (2024)
'What [I] hear is that teaching is done according to the traditional model, where the teacher lectures most of the hour and the students[MPL] just listen and do not have much possibility to react to what is being talked about.'

Authors are often considered unique and creative individuals. Varying approaches, interests, and performances by individual members of the set might be emphasized by context. In example (7a) authors were assigned various themes and were expected to produce original results. Furthermore, they differ with respect to the genres in which they specialize (drawings, graphics, sculptures, and paintings). Unlike in (7a), the MPL in (7b) occurs in a context where all authors are viewed as identical -- they are not as unique as their counterpart (Alena Wagnerová). Examples (8a) and (8b) are similar to the preceding pair. The MFPL construction in (8a) appears in a context where the speaker mentions some of the individual players by name (those mentioned are female), while the MPL form in (8b) is in a context where the players as a set are compared to another set, i.e. ordinary people, regarding their behavior.

(7a) Originálním způsobem tak rozvíjí témata, jimž se ve své práci věnovali vystavující autoři a autorky[MFPL]. (2024)
'They [the curators] therefore develop in an original way the themes that the exhibiting authors have addressed in their work.'

(7b) Reportáže Aleny Wagnerová lze pro jejich specifičnost jen těžko srovnávat s prací jiných českých autorů[MPL] stejného žánru. (2023)
'The reportage by Alena Wagnerová can hardly be compared to the work of other Czech authors[MPL] of the same genre because of their specificity.'

(8a) Veronika Malá, Markéta Jeřábková a Jana Knedlíková jsou mezi nominovanými na jednotlivých postech v anketě Evropské házenkářské federace o nejlepší hráče a hráčky[MFPL] sezony. (2024)
'Veronika Malá, Markéta Jeřábková and Jana Knedlíková are among the nominees for individual posts in the European Handball Federation poll for the best players[MFPL] of the season.'

(8b) Mocní hráči[MPL], jako je stát nebo soukromí developeři, určují způsob života ve městě, zatímco běžní lidé tomuto tlaku vzdorují. (2023)
'Powerful players[MPL], such as the state or private developers, determine the way of life in the city, while ordinary people resist the pressure.'

Finally, MPs (in the Czech Chamber of Deputies) are expected to propagate different political views and are known for their confrontational debates in Czech politics. The MFPL construction in (9a) appears in a context where the future majority group might result from a coalition, i.e. a heterogeneous and complex group, while the MPL in (9b) refers to one of the two sets of politicians who elected the president in Czechoslovakia.

(9a) Hypotetická koalice ANO + ODS by měla ústavní většinu 123 poslanců a poslankyň[MFPL]. (2023)
'The hypothetical ANO + ODS coalition would have a constitutional majority of 123 MPs[MPFL].

(9b) Prezidenta na společné schůzi volili českoslovenští poslanci[MPL] a senátoři. (2023)
'The president was elected by Czechoslovak MPs[MPL] and senators at a joint meeting.'

There are two groups of lemmas that show a decline in the use of MFPL constructions from 2017-18 to 2024. Admittedly, MFPL constructions are not impossible. In (10a) voice or dubbing actors vary in terms of types of awards given to them, and (11a) suggests that each minister within the group is expected to make different decisions. However, actors and ministers are more likely to be seen as individuals in the singular, accompanied by names (e.g., herec Miroslav Krobot 'actor Miroslav Krobot', herečka Jiřina Bohdalová 'actress Jiřina Bohdalová', ministr finance Andrej Babiš 'Finance Minister Andrej Babiš, ministryně práce Michaela Marksová 'Labor Minister Michaela Marksová'). In the plural they tend to appear as a category (10b, 11b).[6] Example (10b) emphasizes the unusual ending of the play, with the entire mass of actors leaving the stage without greeting the audience; the focus is not on the diversity of actors. Example (11b) is about the joint statement by the EU foreign ministers, highlighting the uniformness of their views.

(10a) V sobotu se v Přelouči udělovaly Ceny Františka Filipovského pro nejlepší dabingové herce a herečky[MPFL]. Cenu za celožitovní mistrostvíi si odnesli Maria Drahokoupilová, Jan Přeučil a režisér Jiří Kubík. Hlavní herecké ceny získali Martina Hudečková a Jiří Plachý. (2017)
'On Saturday the František Filipovský Awards for the best dubbing actors[MPFL] were awarded in Přelouč. Maria Drahokoupilová, Jan Přeučil and director Jiří Kubík won the Lifetime Championship. Martina Hudečková and Jiří Plachý won the main acting awards.'

(10b) Když na konci herci[MPL] opustili jeviště, aniž by se uklonili, měl jsem radost, že přes to přese všechno po dvou minutách zazněl zasloužený polesk. (2018)
'When, at the end, the actors[MPL] left the stage without bowing, I was pleased that, despite everything, two minutes later a well-deserved applause sounded.'

(11a) Ale i v případě, že dosavadní vláda zůstane, musíme počítat se změnami, protože nově vejde v platnost zákon proti kumulaci funkcí a celá řada ministrů a

[6]Singular forms make up more than 80% of all the word forms of *ministr* in both 2017-18 and 2023-24 (cf. 40% for *poslanec* in both periods). Singular forms are also more predominant for *herec* (56% of all the word forms in both 2017-18 and 2023-24) (cf. 27% and 28% for *hráč* in the two periods).

ministryňMPFL se bude muset rozhodnout, jestli dále ministrovat, nebo působit v lokální politice. (2017)
'But even if the current government remains, we have to reckon on changes, because the law against the accumulation of functions will come into force, and a whole range of ministersMPFL will have to decide whether to continue to serve as ministers, or to work in local politics.'

(11b) Borrell to uvedl včera v Lucemburku na okraj jednání ministrůMPL zahraničí zemí Evropské unie. […] Společné odsuzující prohlášení sedmadvacítky ohledně útoků na UNIFL, které je označuje za „vážné porušení mezinárodního práva", […] (2024)
'Borrell said it yesterday in Luxembourg in the margins of the meeting of the EU state foreign ministersMPL […] Joint statement of condemnation by the 27 [EU states] of the attacks on UNIFL, calling a "serious violation of international law", […]'

Seniors and pupils could be part of the speaker's in-group community but they are more likely to be viewed as part of the population that needs protection or education rather than individuals who act independently. The lemma senior is often set in a context that addresses social and economic problems. In (12) seniors constitute an age category; the focus is what must be done. Compare this example with (3a) above where the speaker is invested in the well-being of each citizen. In (13) elementary school students are listed as one of the three categories along with teachers and parents.

(12) Podle predikcí Ústavu zdravotnických informací a statistiky ČR se totiž Zlínský kraj do tří až čtyř let stane nejstarším v zemi a bude potřebovat dvojnásobek lůžek pro seniorymPL. (2024)
'According to the predictions by the Czech Institute of Health Information and Statistics, the Zlín Region will in fact become the oldest in the country within three to four years and will need twice as many beds for seniorsMPL.'

(13) V rámci jejich balíčku se tak budou konat workshopy, semináře a interaktivní programy zaměřené jak na žákyMPL, tak na učitele a rodiče. (2023)
'Under the auspices of their package, there will be workshops, seminars, and an interactive program aimed at pupilsMPL as well as teachers and parents.'

Table 4, in short, does not consist of a random collection of lemmas. It suggests that MFPL constructions are motivated by the speaker's solidarity with the referents. Lemmas that can be identified as in-groups most likely allow solidarity expressions (Czechs and colleagues). Additionally, MFPL constructions are also possible for groups that could suggest set-internal heterogeneity, especially with contextual support.

Table 5 below shows new lemmas for which MFPL constructions occur above ipm >.3 in 2023-24. Here, we also see lemmas that could be considered types of in-groups. Fire fighters, who are often volunteers in the Czech scene, can be couched in discourse that focuses on speaker alignment with the members of the set. Readers, visitors, users, viewers (audience) are clients or subscribers to media and cultural organizations; discourse could indicate that each and individual member is valued. Workers can be colleagues and

potentially refer to an in-group. These newly joining lemmas can be characterized as extensions of the more prototypical in-groups.

Table 5, however, shows more lemmas that could signal individuated members within a set. Journalists, artists, creators, poets, writers, confectioners, architects, and scientists are specific types of authors. Similarly, graduates, just like students, constitute an intellectually diverse group. Tennis players, runners, athletes, scouts are specific groups of players; they are "groups whose members contribute individually in competitions" Politicians, mayors, Israelites, Palestinians, and directors (typically school principals) could suggest diversity in political views. Both politicians and mayors have different political affiliations. Israelites and Palestinians can be interpreted as a politically heterogeneous groups (in the coverage of the conflict in Gaza at this time). Directors who lead basic education are powerful negotiators to influence the Czech Ministry of Education, Youth and Sports in different directions. The appearance of renters and pensioners indicate that MFPL constructions might be spreading to groups varying in economic conditions. Table 5 thus shows expansion of MFPL use in lemmas that can be set in contexts that accentuate individuality of set members. This tendency suggests on-going small steps (Traugott and Trousdale 2013: 74-75): while the concept of in-groups is extended to cover more sets, MFPL forms are further spreading to lemmas that signal individuated set members when such interpretation is contextually supported. In other words, MFPL appears to be motivated not only by socially pre-determined distinctness, but increasingly by more schematically conceptualized distinctness.

MFPL constructions in 2023-24	raw freq	ipm
novináři a novinářky 'journalists'	19	2
umělci a umělkyně 'artists'	15	1.58
členové a členky 'members'	12	1.26
tvůrci a tvůrkyně 'creators'	8	0.84
návštěvníci a návštěvnice 'visitors'	7	0.74
básníci a básnířky 'poets'	6	0.63
čtenáři a čtenářky 'readers'	6	0.63
politici a političky 'politicians	5	0.53
pracovníci a pracovnice 'workers'	5	0.53
spisovatelé a spisovatelky 'writers'	5	0.53
tenisté a tenistky 'tennis players'	5	0.53
uživatelé a uživatelky 'users'	5	0.53
absolventi a absolventky 'graduates'	4	0.42
cukráři a cukrářky 'confectioners'	4	0.42
diváci a divačky 'viewers'	4	0.42

hasiči a hasičky ‘fire fighters’	4	0.42
Izraelci a Izraelky ‘Israelites’	4	0.42
nájemníci a nájemnice ‘renters’	4	0.42
ředitelé a ředitelky ‘directors, school principals’	4	0.42
vědci a vědkyně ‘scientists’	4	0.42
architekti a architektky ‘architects’	3	0.32
atleti a atletky ‘athletes’	3	0.32
běžci a běžkyně ‘runners’	3	0.32
důchodci a důchodkyně ‘pensioners’	3	0.32
občané a občanky ‘citizens’	3	0.32
Palestinci a Palestinky ‘Palestinians’	3	0.32
skauti a skautky ‘scouts’	3	0.32
starosté a starostky ‘mayors’	3	0.32

Table 5. MFPL constructions appearing exclusively in 2023-24 above ipm>.3.

4. Conclusions

This study explored discourse motivations for the emergence of MFPL forms in 2017-18 and 2023-24. The study is limited in scope in that it does not include FMPL forms (e.g. *kolegyně a kolegové*) and the neuter singular forms of the *studentstvo* type. The quantitative as well as qualitative data nevertheless show that MFPL constructions are emergent and that they are in the early stages of competition with MPL forms. The lemmas that increasingly appear in MFPL constructions during this period suggest that that motivations for MFPL use might be becoming more schematic: they appear in-groups (Czechs, colleagues) that allow social alignment earlier, but are spreading to other lemmas that signal the distinctness of members within the set. While plural nominals allow a homogeneous, summary construal of the profiled region (Langacker 1987), MFPL constructions encode a partitioned construal of plural reference; they facilitate the interpretation of a set as internally differentiated.

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Peer-reviewed article

A Swedish-Norwegian Diplomat in the Russia of Nicholas I

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Abstract

Nils Palmstierna was the Swedish and Norwegian envoy in St. Petersburg between 1820 and 1845 and is perhaps the Swedish diplomat who made the greatest impact on Russian cultural history. Nils Palmstierna spoke Russian and Polish, and he appears to have become a well-known figure in the social life of the Russian capital at the time. In this article, I aim to identify the impressions Palmstierna made in St. Petersburg and in Sweden, as well as the impressions that the city and Russia made on him. Particularly interesting are his diplomatic dispatches from 1825 and 1826, in which, as an eyewitness, he was able to report on the Decembrist uprising and the funeral of Tsar Alexander I. He participated in the city's social life and, like the Russian upper class of the time, became an avid card player. A notable event was a dinner organized by Palmstierna and where both Aleksandr Puškin and the grammarian Nikolaj Greč were among the invited guests.

En svensk-norsk diplomat i Nikolaus den förstes Ryssland

Lördagen 24 december 1827 gav Sveriges och Norges envoyé baron Nils Palmstierna stor middag i sitt residens som enligt Petersburgs adresskalender för 1824 låg nära Amiralitetet, på Morskaja-gatan (Podrobnyj plan 1828). Med ett kollegieråd före och med ett titulärråd efter sig i adressboken.

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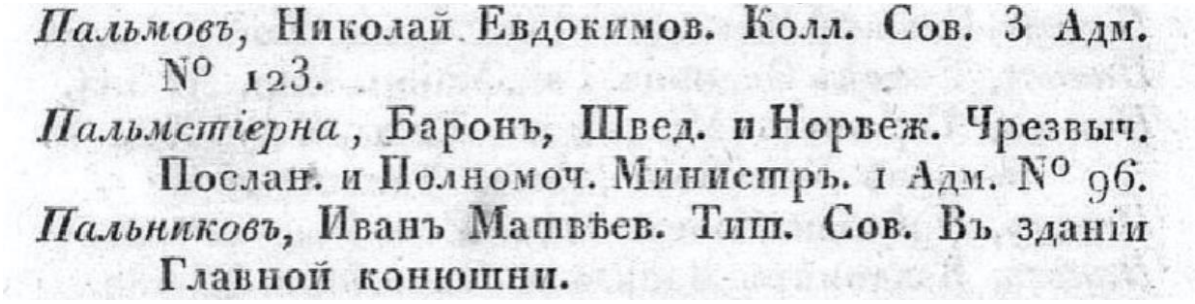

Пальмовъ, Николай Евдокимов. Колл. Сов. 3 Адм. № 123.
Пальмстіерна, Баронъ, Швед. и Норвеж. Чрезвыч. Послан. и Полномоч. Министръ. 1 Адм. № 96.
Пальниковъ, Иванъ Матвѣев. Тиш. Сов. Въ зданіи Главной конюшни.

Bild 1. Fragment av adresskalendern (Aller 1824)

Mer än hälften av gästerna var ryssar och bland dem befann sig två författare, Nikolaj Greč och nationalskalden Aleksandr Puškin. Samma år hade Greč publicerat två versioner av sin ryska grammatik, en mer teoretisk och en mer praktisk ”Utförlig rysk grammatik” (*Prostrannaja russkaja grammatika*) respektive ”Praktisk rysk grammatik” (*Praktičeskaja russkaja grammatika*) (Greč 1827a; Greč 1827b). En svensk översättning av den praktiska grammatiken kom redan två år senare ut i Helsingfors under titeln: *Första grunderna af ryska grammatiken* (Greč 1829).

Middagen uppfattades av petersburgarna som unik på två sätt: den ägde rum på en fastedag, vilket varken värd eller de flesta gäster brydde sig om. Palmstierna var ju protestant och hade ingen anledning att följa fastorna och det gällde också Greč. Det andra som man kunde lägga märke till är att Palmstierna hade bjudit så många ryssar, och flera av dem, som Greč, hade inget med diplomaternas värld att göra. Vid ett annat tillfälle klagade en av de bjudna, den höge ämbetsmannen Modest Korf, på Palmstiernas klädsel. (Karpov 2013: 32) Som friherre kunde Palmstierna stå fri från diverse klädkoder.

Nils Palmstierna

Nils Palmstierna föddes 1788 i Hömbs socken i Västergötland. Efter en kortare militär bana började han 1809 sin tjänstgöring på föregångaren till dagens Utrikesdepartement och var först stationerad i Berlin och sedan, som mycket ung envoyé, i Wien från 1818. Från 1820 blev han stationerad i Petersburg i samma funktion. Han stannade ett kvartssekel på sin post fram till 1845 och är den svenske diplomat som kanske har gjort störst avtryck i den ryska kulturhistorien.

Nils Palmstierna kunde ryska, han förefaller ha blivit en känd person i dåtidens societetsliv i den ryska huvudstaden. Jag vill i denna artikel försöka finna avtryck som Palmstierna gjorde i Petersburg och i Sverige och vilka intryck som staden och Ryssland gjorde på honom.

Posten som Sveriges och Norges ambassadör i den ryska huvudstaden var utrikespolitiskt viktig och innehavarna av ämbetet satt oftast i många år och lärde känna

Ryssland väl. Före Palmstierna hade Curt von Stedingk varit ambassadör åren 1790 till 1811 och efter Palmstierna kom Gustaf af Nordin som var stationerad i Petersburg som svensk-norsk beskickningschef mellan åren 1845 och 1856 men som hade varit placerad i Petersburg två gånger tidigare i lägre befattningar och med Palmstierna som sin chef (Korsakova & Noskov 2015: 200–201).



Bild 2. Generallöjtnanten och envoyén friherre NILS FREDRIK PALMSTIERNA, f. 1788, d. 1863. Efter fotografi, trol. från 1861. N F P. ”En politisk karaktärsbild från Oscar I:s dagar” (1933), 78

Konservatismen

Palmstierna var anhängare av enväldet och han blev hemkallad till Sverige och berövad sitt ämbete eftersom han i sin egenskap av riksdagsman i adelsståndet pläderat mot representationsreformen som sedermera utmynnade i tvåkammarriksdagen. Det

förargade den nye kungen Oscar I, som stödde reformen och som ville statuera exempel. En hög ämbetsman kunde inte få stå i opposition till kungen i en så viktig fråga.

Palmstierna tyckte illa om den demokrati som under denna tid höll på att växa fram i Sverige och skrev: ”Demokrati alstrar demagogi, demagogi alstrar anarki, anarki antingen despotism eller förlust av landets självständighet.” (Palmstierna 1880: 72). Den nya arvsordningen då man och kvinna ärvde lika, som antogs 1845, var han likaså motståndare till. Han ansågs till slut vara en rysk röst i Sverige och förordade vänskap med Ryssland.

Det ryktades om att det var han som skrivit ett inlägg i tidningen *Svenska biet* 29 augusti 1844, som ville skrämma offentligheten för rysk vrede om riksdagen skulle anta representationsreformen och beröva adeln dess privilegier, en dåtida oförblommerad påverkanshandling:

> Vi vilja lämna därhän, om Ryssland tillåter verkställigheten av en organisation som i framtiden kan bliva i mer än ett avseende fruktansvärd för det aristokratiska enväldet. (Svenska biet 1844)

Det är oklart om skribenten syftar på enväldet i Ryssland eller i Sverige, men ett är klart, han vill behålla det. Hans brorson karakteriserade Nils Palmstiernas politiska uppfattning: ”Hans politiska grundsatser voro långt ifrån demokratiska och egentligen mera aristokratiska än man här i riket kunde finna tillämpliga på våra förhållanden.” (Palmstierna 1880: 72)

I en satirisk notis om Palmstierna i en av dåtidens skvallerkrönikor heter det infamt om hans närhet till det ryska hovet:

> Han hade redan före kejsar Nikolajs tronbestigning (1825) tillträtt sitt ämbete, hade sett hela den yngre generationen av det kejserliga huset växa upp och gungat de små storfurstarna på sina knän, hade nästan dagligen varit gäst hos kejsaren och var ”där i huset” en mycket välkommen vän. (Hellberg 1870: 70)

Palmstierna gick i frivillig landsflykt och bosatte sig i Hamburg där han avled 1863 och där han också är begravd. Han gifte sig långt under sitt stånd med Christina Håkansson som han redan levt samman med i många år. Hans vurm för adeln fick här stå tillbaka för familjelivet. Samma sak hade hänt med hans högättade föregångare greve Curt von Stedingk, som gifte sig med Ulrika Fredrika Ekström på anmodan av Katarina den stora som skänkte dem en dubbelsäng i bröllopsgåva.

Kungen erbjöd Palmstierna en annan post som envoyé men han tackade stolt nej med orden: ”ty vare sig i London, Paris, Berlin, Wien eller annorstädes är Nils Palmstierna alltid densamme.”

Under Krimkriget tog Palmstierna ställning för Ryssland och är en av mycket få svenskar som tilldelats Alexander Nevskij-orden, som han fick ta emot när han av den svenske kungen tvingats lämna den ryska huvudstaden.

I tidens ryska memoarer talas om hans goda kunskaper i ryska, men också polska nämns, hans kännedom om rysk litteratur, hans bekantskap med Puškin och Mickiewicz och inte minst baronens hetsiga temperament och hans rykte som dålig förlorare i kortspel. Den unge franske diplomaten Marie Melchior Joseph Théodose de Lagrené noterar i ett brev att Palmstierna lätt brusade upp, var annorlunda än alla andra diplomater och att han var mycket kunnig i historia och statskunskap (Korsakova & Noskov 2015: 200).

Depescherna 1825–1826

Palmstiernas mest berömda depescher hänför sig till 1825 och 1826. I dem kan man följa Nikolaus den förstes tronbestigning, dekabristupproret och Alexanders begravning. Dekabristerna var en oppositionsrörelse som utvecklades framför allt bland officerarna med början 1816 och som krävde begränsningar av kejsarens makt och en konstitution. Själva upproret ägde rum 14 december, enligt den gamla stilen, som motsvarar 26 december i den gregorianska kalendern, i samband med tronskiftet efter Alexander den förstes död. På ryska heter månaden *dekabr'*, därav namnet på upproret.

Under en parad på Senatstorget, nära Vinterpalatset, då trupperna skulle svära trohetseden till den nye kejsaren Nikolaus den förste vägrade livgardet. Det ledde till en eldstrid där mer än tusen människor lär ha mist livet. Fem av upprorsmännen dömdes till döden och avrättades, många officerare sändes till sibirisk fångenskap.

I en depesch daterad 17 februari 1826, beskriver Palmstierna sin första audiens för den nye kejsaren, Nikolaus den förste och nämner för kejsaren att han själv befunnit sig på Senatstorget under själva upproret:

> Innan jag hann uttala de vid dylika tillfällen övliga fraserna, lät kejsaren samtalet falla på den olyckliga tilldragelsen, som sysselsätter alla sinnen. Ännu intagen av förskräckelse och förvåning genom resultatet af alla dessa upptäckter, lät jag kejsaren veta att jag varit med i folkhopen, där jag sett hans kejserliga majestät utan följe och sålunda utsatt för en fruktansvärd fara. ”Den där folkhopen, svarade hans kejserliga majestät, ”utgjordes af beskedliga bönder, men jag befann mig sedan en lång stund mellan tvänne mördare.” /---/ Jag vill endast anföra det viktigaste av vad kejsaren sade. ”Det har blivit nödvändigt,” yttrade han, ”att verkställa en mängd arresteringar. De är ingen olycka för individerna, vilka därigenom får medel att rättfärdiga sig inför varje misstanke, och dessa åtgärder är oundgängliga. För resten kan de i ett land som vårt, vilket lyckligtvis inte är konstitutionellt, försiggå helt lagligt, och jag skulle, om så behövdes, låta arrestera halva nationen för att bevara den andra hälften obesmittad.”
> Jag anmärkte att arresteringar på grund av starka misstankar i dylika fall även kunde försiggå lagligt i länder med annan konstitution, exempelvis i Sverige. (Ahnfelt och Suchtelen 1887: 357–358)

Kejsaren framställer de oppositionella tankarna om en konstitution som en smitta, spridningen som en epidemi och arresteringarna som en karantän.

Samtalet gällde frågan om konstitution. Ryssland saknade en sådan och det var det som kuppmakarna krävde. Sverige hade ju däremot en ny grundlag antagen 1809, men

Palmstierna som var stockkonservativ försökte i samtalet förminska den svenska grundlagens betydelse genom att genmäla att det också i Sverige gick att enkelt företa arresteringar.

Också den svenske och norske kungen, Karl XIV Johan, i Norge kallad Karl III Johan, beundrade och berömde Nikolaus den förste för att ha slagit ner dekabristerna. Det framgår av ett samtal mellan kungen och den ryske ambassadören Peter van Suchtelen, som relateras av denne i en depesch till kejsaren:

> Kungen ingick därefter i ett längre samtal med ministern, varunder Hans Majestät öppet uttalade sig både om sin egen och den allmänna ställningen i Europa. Han kunde som monark inte annat än beklaga den nödvändighet som ålagt kejsaren att börja sin regering med att bestraffa ett uppror; men detta upprors kuvande var en tjänst gjord åt alla troner. ”Låt oss hoppas”, sade han, ”att de väpnade styrkornas sammansvärjningar mot samhällsordningen haft sin tid, och att det skall lyckas monarkernas fasta förbund att upprätthålla samhällena, freden och bestående fördrag. Sverige önskar ingenting högre. Det önskar uppriktigt framgång åt kejsarens regering, övertygat om att han, liksom sin store företrädare, skall bli ett stöd för ordningen mot upplösningen och anarkin.” (Schinkel 1872: 208)

Den svenske kungens reaktion speglar vad som sades när Palmstierna mötte Nikolaus. Både kung Karl XIV Johan och Palmstierna uttrycker sitt gillande över att tsaren lyckats kuva dekabristupproret.

Palmstierna berättar i en depesch om Alexander den förstes likfärd och begravning. Han återger en detalj om tsarens kusk, som återkommer i många andra skildringar av skeendet:

> Konungen påminner sig kanske kusken som var anställd hos salig kejsaren. Ers Excellens måste förvåna sig över att jag i detta sammanhang nämner en person av denna ställning, men han förtjänar att undandras glömskan. Ilia (Elias), oskiljaktig från kejsarens person så snart Hans Majestät företog en resa eller den minsta utflykt, har kört kistan från Taganrog ända hit till katedralen. Då i Moskva hans nationaldräkt och hans skägg inte ansågs passa ihop med ceremonielet vid processionens intåg, erbjöd han sig att raka av det senare, vilket i Ryssland anses som den största uppoffring en man av denna klass kan göra. Han fick emellertid behålla sitt skägg, och det var han som även vid detta tillfälle utförde de funktioner han var så avundsjuk om att inte dela med någon. (Ahnfelt och Suchtelen 1887: 346)

Berättelserna om tsarens kusk och hans skägg var vida spridda och kusken var välkänd i Petersburg. Hans namn var Ilja Bajkov och episoden återkommer i andra berättelser om tsarens död och begravning. Palmstierna var nog inte särskilt intresserad av det ryska folkets öde, men denna anekdot om hur en enkel ryss kom i konflikt med hovceremonielet, kan han inte låta bli att återberätta till och med i en officiell depesch. Den är också ett exempel på anekdoter som är en del av diplomaters skrivande.

Palmstierna deltog i begravningsprocessionen och begravningen och avslutade sin depesch:

> Medan sångarkören, enligt den grekiska kyrkans ritual, stämde upp den majestätiska sång som avslutade begravningsceremonin, trängdes alla kring graven för att kasta tre händer mull i den – den

> sista sorgliga gärden av tacksamhet mot så många folks välgörare. De sista orden i den religiösa sången uttryckte en önskan att den avlidnes minne måtte förbli evigt; denna önskan genljöd i allas hjärtan, och eftervärlden ska bevisa att den blivit bönhörd. Bland alla mina minnen finner jag inte ett sådant ögonblick – men jag glömmer att mina känslor inte bör utgöra föremål för en officiell rapport. (Ahnfelt och Suchtelen 1887: 358)

Palmstierna syftar på de avslutande orden i begravningsritualen: ”Evigt minne” i en ganska elak ordvits. Depescherna är välskrivna och som här också skarpa, som hans egen glömska fyndigt sammanflätas med begravningsgudstjänstens uppmaning att komma ihåg för evigt och att Palmstierna själv inte menar sig finna några minnen av tsaren som ska förbli i honom för evigt.

Indirekt blir passusen en förödande kritik av Alexander den förste. Tsaren hade nog varit alltför liberal för den svenske envoyéns smak, men på senare år hade han blivit alltmer av en baksträvare. Det är ändå svårt att förstå hans avoghet mot Alexander den förste till och med i en officiell depesch. ”Många folks välgörare” kan också innehålla ett stänk av ironi. Sverige hade ju förlorat Finland under Alexanders regeringstid. En svensk kunde knappat kalla tsaren för något sådant, i alla fall inte på allvar. Han hade i samma depesch dessutom skrivit att tsarens kusk ”förtjänar att undandras glömskan”. Palmstiernas dom över Alexander är hård och obeveklig.

Palmstierna skriver också om dekabristernas öden, men avstår från de hemskaste detaljerna. Han får kritik därför av författaren till boken *S:t Petersburg, Minnesteckningar* utgiven 1854 och författad av Fredrik Wilhelm Wennberg, svensk affärsman boende i staden, som befunnit sig på plats i Petersburg under dekabristupproret. Palmstierna var dock i Moskva under avrättningarna och på det sättet förlåten och Wennberg citerar i stället en depesch från den svenske generalkonsuln Carl Gustaf Sterky om detaljer i avrättningen: Wennberg hade fått långa avskrifter och kunde därför publicera en berättelse om avrättningen:

> Av varje regemente i härvarande garnison hade en avdelning uppmarscherat till den så kallade fästningsplatsen, där de formerade carré. Å ena sidan av vallen restes därefter i största hast en schavott med tillhörande galge, i vilken de ovannämnda fem förbrytarna hängdes. De övriga av dem, nästan uteslutande tillhörande militären, fördes framför fronten av sina kårer, där man avklädde dem epåletterna samt alla uniformens attribut. Dessa saker kastades, sedan värjan brutits över vars och ens huvud, i ett bål som antänts på platsen. Därefter togs schavotten ner, de döda kropparna undanröjdes, och trupperna återvände under klingande spel till sina kaserner. (Wennberg 1854:108–109)

Sterky är också likt Palmstierna lojal mot den nye kejsaren, men förefaller ändå upprörd över hanteringen av de dödsdömda. Wennberg tillägger i sin berättelse att repen var för svaga och brast, så att tre av de dömda fick bli hängda två gånger. Han återger den berömda repliken från en av de dömda om den misslyckade hängningen: ”fördömda land, där man icke ens förstår sig på att hänga en stackare!” Wennberg är den mest kritiske av de tre svenskarna.

Palmstiernas depescher visar hans kunnighet om förhållandena och hans sinne för detaljerna och hans färdighet att skaffa sig information. Han är en driven skribent där också humorn kommer fram. Det tycks att han skriver just för publicering och inte enbart till den svenske utrikesministern eller till den svenske kungen.

Depescherna från 1825 och 1826, som författades i en dramatisk brytningstid, gavs ut 1887 i ett tvåbandsverk om Ryssland och Sverige: *Två krönta rivaler: Bernadottesminnen* (Ahnfelt och Suchtelen 1887). Depescherna har också publicerats på ryska. Palmstierna, Sterky och Wennberg ger tillsammans en ganska god bild av dekabristupproret.

Middagen och uppträdet. Greč och Puškin

Så tillbaka till Palmstiernas middag i juletid 1827. Både Greč och Puškin hade stått nära dekabristerna men ingen av dem blev arresterad. Greč blev sedermera alltmer tsartrogen i sina åsikter. Det framgår av hans publicerade memoarer där han i alla avseenden framstår som monarkist och dessutom förefaller vara en smula pretentiös.

Under middagen uppstod en häftig ordväxling mellan Puškin och Greč om grammatikorna. De ursäktade sig för värden men denne förklarade att det var länge sedan han hört ett sådant intressant samtal vid sitt bord. Det är bara Greč själv som berättar om uppträdet, det finns inget i depescherna om händelsen. Han skriver om sig själv i tredje person och det har gått trettio år sedan middagen. Palmstierna är sedan länge avpolletterad:

> Барон хорошо знал и любил русский язык. Среди обеда завязался между поэтом и указчиком разговор о какой-то грамматической тонкости. Они заспорили, разгорячились, забыли, что сидят в светском обществе, где приличнее говорить о погоде, о вчерашнем вистте и о нынешнем соусе à la Talleyrand. Гости умолкли и слушали ратоборцев российского слова с вниманием, хотя большая часть не понимала, отчего они так беснуются. Наконец оба поединщика заметили общее изумление, и один из них извинился пред хозяином в нарушении таким неуместным увлечением обычной благопристойности дипломатической трапезы: «Продолжайте, сделайте милость, продолжайте! – сказал им барон с искренним уважением. – Я давно не слыхал у себя за столом такой интересной беседы». (Karpov 2013: 28)

Puškin och Greč talade alltså animerat om den sistnämndes nyutkomna grammatikor, och den fråga man ställer sig är vad dispyten kan ha gällt. Greč var journalist, måttligt framgångsrik författare och dessutom känd för att han höll föreläsningar mot betalning om det ryska språket och att det kom bortåt 300 betalande åhörare till dessa föreläsningar. De finns utgivna i två volymer. Palmstierna besökte dessa, enligt Korf (Karpov 2013: 32).

Grečs grammatik var normativ och han kallades språkets gendarm i en skämtdikt som upplästes tidigare 6 december 1827 på en fest som Greč anordnade för att fira utgivningen av de båda böckerna. Dikten anspelade på att Greč hade samma förnamn

som tsaren Nikolaus den förste och tsarens fäbless för militär och civil disciplin liksom Grečs egen tsartrogenhet och önskan att reglera språket. Puškin var också närvarande på den festen.

Greč ville med hjälp av sina grammatikor, han skrev fler än två, sina artiklar och sina föredrag propagera för Nikolaj Karamzins språksyn. Han anknöt till en språkdebatt som hade utspelat sig en generation tidigare. På ena sidan stod Nikolaj Karamzin som ville att ryskan skulle vara ett elegant språk under inflytande från fransk syntax och med lånord från västeuropeiska språk om det behövdes. Däremot ville han utmönstra alla kyrkoslaviska ord som fanns i ryskan. Han stod vidare främmande för användningen av folkspråk. Det var så som Greč tänkte sig det ryska språket.

På andra sidan stod Aleksandr Šiškov som var konservativ och ville ha en ryska utan västerländskt inflytande och ett språk nära kyrkoslaviskan både när det gällde ordförråd och syntax. Puškin skapade en syntes av Karamzin och Šiškov som innebar att språket blev ett mycket välfungerande verktyg för den klassiska ryska litteraturen, prosa såväl som poesi.

Den öppenhet för såväl kyrkoslaviska ord och konstruktioner, som var central för Šiškov, och lån från väst som hos Karamzin och dessutom beredvillighet att använda folkspråk gjorde Puškins ryska lika rik som Shakespeares engelska.

Här stod ju Greč och Puškin alltså långt ifrån varandra och det kunde ge upphov till en animerad polemik 24 december 1827. Palmstierna skriver själv inget om middagen, men Puškins kontakter med den svensk-norska beskickningen är känd genom ett bevarat brev från Puškin till Gustaf af Nordin (Bodin 1984: 78–88).

Det fanns alltså en grundläggande skillnad i Puškins och Grečs syn på det ryska litteraturspråket, men de kom ju i gräl om en finess, en ”*tonkost* ”. Vad kunde det vara? Jag skulle här föreslå användningen av objekt i genitiv i stället för ackusativ efter negerade verb. Greč förespråkade enbart användningen av genitiv, Puškin hade en större öppenhet för användning av ackusativ något som var mera utmärkande för talspråket, och något som han försvarar i sin artikel om språket i *Evgenij Onegin* (Vinokur 1959: 201–202).

Dålig förlorare

Den ryske poeten Petr Vjazemskij har givit ett fylligt porträtt av hur Palmstierna tedde sig i den ryska huvudstaden, om hans goda kunskaper i ryska, om hans intresse för rysk litteratur och om den skandinaviska kargheten i hans uppträdande (Vjazemskij 1888: 214–215).

Han hade dåligt kortsinne och brusade bland annat upp när han förlorat pengar under kortspel i den salong som den ryske utrikesministern Karl Robert von Nesselrodes svärmoder höll i Petersburg. När han förlorat flera spel utbrast han: ”Det här huset måste

vara uppfört på en kyrkogård av galna hundar”. Vjazemskij jämför honom i den stunden under vredesutbrottet med asaguden Oden.

Det var ett synnerligen odiplomatiskt uppträdande hos utrikesministerns svärmor. Vjazemskij menar vidare att Palmstierna hade blivit förryskad genom sin långa vistelse i Sankt Petersburg, vilket svenska iakttagare var överens med den ryske poeten om.

Hit kan också hans vurm för kortspel räknas. Som Jurij Lotman visat i en längre artikel var kortspel, särskilt hasard ofta förekommande i den ryska överklassen under 1700- och 1800-talen (Lotman 1978). Palmstierna tycks deltaga i detta nöje till fullo.

Lotman skriver vidare, med hänvisning till Puškins *Spader dam*, om en rysk inställning till hasard som speglar det ryska samhället där så litet gick att planera och så mycket berodde på ödet. Livet var hasard. Hermann, man kan lägga märke till hans tyska namn, kräver de säkra korten, möjligheten att planera och räkna ut utfallet.

Palmstierna kan inte acceptera ödet och blir i det ryska sammanhanget en sär person, som blir så upprörd när han inte vinner att han skyller på huset där han är eller att någon kikat i hans kort. I fascinationen för kortspel passar han in i den ryska miljön, i övertygelsen att han har rätt till starka kort sticker han ut.

På det sättet liknar han Hermann i Puškins *Spader dam* som menar att det måste finnas ett sätt att komma runt tillfälligheterna, att hitta ett sätt att finna de säkra korten. Palmstierna kan inte acceptera att han av ödet får dåliga kort. Han menar sig ha rätt till bra kort.

Mickiewicz och Bronsryttaren

En polsk journalist som gått över till den ryska sidan, Józef Emanuel Przecławski, bosatt i Petersburg, ger oss i sina minnen ännu mera information om Palmstierna. Han var alltså passande umgänge för den tsartrogne Palmstierna. Den svenske diplomaten talade inte bara ryska utan också utmärkt polska, kände Mickiewicz och uppskattade hans poesi. Przecławski skriver:

> Теперь несколько слов о самом Пальмштетерне. Это был человек умный, ученый и с манерами истинного джентльмена. Он бывал в одних домах с Мицкевичем и со мною и был близко с нами знаком. К тому же, не знаю какими судьбами, он хорошо знал польский язык, свободно говорил на нем и был пламенным поклонником поэтического гения Адама. Он был приятным гостем в высшем петербургском обществе, но до известной степени. Он имел один странный недостаток: не мог хладнокровно играть в карты, и, едва только взяв их в руки, то вдруг незаметно делался грубым и дерзким. (Przecławski 1872: spalt 1952)

Från början av december 1827 vistades Mickiewicz i Petersburg, och han kan mycket väl också ha varit gäst på middagen 24 december. Också Przecławski berättar alltså en historia om Palmstiernas dåliga kortsinne. Han uppger att den svenske kungen förbjudit den svenske diplomaten att spela kort efter ett uppträde som återges av den polske

journalisten. Palmstierna anklagar en aktad rysk general för att tjuvkika i hans kort, som förklaring till att det går dåligt för honom i spelet. Återigen kan den svenske diplomaten inte acceptera att ödet har gett honom dåliga kort.

Przecławski antyder till och med vagt i en not i kapitlet om Mickiewicz i sina minnen, som alltså är skrivna på ryska, att Palmstierna kan ha givit idén till Puškins poem, eller berättelse på vers som han själv kallat den, ”Bronsryttaren”, och Mickiewiczs dikt ”Pomnik Piotra Wielkiego”. (Przecławski 1872: spalt 1951)

I kapitlet talas om Mickiewiczs förmåga att improvisera och i noten berättar han helt à propos en av sina många litterära anekdoter. Przecławski finner sig sitta bredvid Baron Palmstierna under ett framträdande av en berömd italiensk improvisatör, en italiensk professor, Guistiniani. Palmstierna fäller ett ofördelaktigt ord om improvisationen som Guistiniani råkar höra.

Han ber då Palmstierna om att föreslå ämne och språk för en improviserad dikt och denne framkastar Bronsryttaren och förbluffar den svenske diplomaten med att han efter en liten stund presenterar en dikt på latin och på versmåttet hexameter. Palmstierna blev imponerad och gick upp på scenen och gratulerade Guistiniani. Följande samtal utspelar sig mellan Palmstierna och den italienska improvisatören:

> — Что ж, не следует смешивать с уличными импровизаторами. Какой, по-вашему, самый трудный язык для стихосложений?
> — Это, конечно, греческий и латинский, — сказал немного сконфуженный дипломат.
> — Извольте избрать один из них.
> — Я очень слаб в греческом, но латинский знаю довольно твердо.
> — Очень хорошо; теперь извольте сказать, какой размер для латинского стихосложения считаете самым трудным?
> — Конечно, гекзаметр, шестистопный александрийский.
> — Хорошо, так неугодно ли вам задать мне тему?
>
> Пальмштиерна предложил тему: известный памятник Петру I, что на Сенатской площади. Джустиани, обратившись к публике, предупредил, что будет импровизировать по-латыни и, не задумываясь, не заикаясь, продекламировать более ста безукоризненных гекзаметров на языке Вергилия и Горация о великом монархе, оригинале знаменитого памятника. Удивленный и восхищенный Пальмштирна вошел на эстраду и от души пожал руку импровизатору, признавая себя побежденным. (Przecławski 1872: spalt 1951)

Inget sägs dock direkt om Mickiewicz eller Puškin och deras respektive dikter i noten. Däremot stämmer den tidsangivelse Przecławski föreslår, någon gång under 1830-talet. Puškins ”Bronsryttaren” skrevs 1833, Mickiewiczs *Dziady* del 3 där ”Pomnik” ingår är från 1832. Faktum är dock att Giovanni Guistiniani flyttade till Petersburg först 1841 (Guistiniani). Ämnet ”Bronsryttaren” var kanske tvärtom bekant för Palmstierna måhända både från Puškins och Mickiewiczs poem och det låg därför nära till hands att föreslå ämnet, som dessutom var känsligt. Puškins poem fick inte publiceras, Mickiewiczs *Dziady* där dikten ingår var förbjuden i Ryssland.

Palmstierna kunde ha varit bekant med båda texterna. Mickiewicz var känd som improvisatör och fenomenet Guistiniani visar hur viktig improvisationskonsten var i tidens litterära miljö. Däremot kunde inte Palmstierna ha givit inspirationen till statydikterna, som antyddes av Przecławski.

Något om hans diplomatiska verksamhet

Två viktiga framgångar i den diplomatiska verksamheten har gått till eftervärlden. Palmstierna var med och reglerade den norsk-ryska gränsen på ett för Norge fördelaktigt sätt. Ryska källor talar just om denna för Ryssland ofördelaktiga gränsdragning. För detta sitt arbete tilldelades Palmstierna ”Medaillen för Borgerdaad”.

Det andra ärendet som han fick att hantera och som han också lyckades lösa var en tvist mellan Sverige och Ryssland i skeppshandelsfrågan. Sverige hade sålt några örlogsfartyg till Colombia och Mexiko, vilket den ryske tsaren motsatte sig. Den ryska sidan menade att det var i strid med Heliga alliansen som Sverige hade anslutit sig till. Sverige tvingades ta tillbaka köpet.

Det innebar en stor förlust för statskassan men blidkade kejsaren som hade hotat Sverige med krig om köpet inte gick tillbaka, som det heter i samma skvallerberättelse som nämnde hans närhet till tsarfamiljen:

> Han hade skött sitt ämbete förträffligt, i synnerhet i den kinkiga uppgiften att ställa till rätta konflikten med anledning af den beryktade skeppshandeln, samt beklädde den viktigaste platsen bland alla dem, som utom Sveriges gränser kunde vara av särskild vikt både för vår regerande dynasti och för vårt fädernesland. (Hellberg 1870: 160)

Hans ansträngningar framgår i en anteckning gjord av den ryske vice utrikesministern Pavel Divov, att Palmstierna nästan hade svimmat i sin stol när han inte fick igenom ett krav som han ställt till det ryska utrikesministeriet (Divov 1898: 510).

I en nekrolog skriven 1864 får han mycket beröm för sitt långa diplomatiska värv i Petersburg:

> Han blev från detta ögonblick /då han tillträtt i Petersburg/ en påpasslig, men försiktig, en nitisk, men svenskt sinnad och handlande mellanlänk, som vidmakthöll, utan förödmjukelse och fjäsk, det goda förståndet mellan de bägge länderna, och som tillvann sin person självhärskarens aktning och förtroende, ävensom stort anseende hos den högsta sfären och bland sina kolleger vid stränderna af Neva. (Nils Fredrik Palmstjerna 1863: 124–128)

Sverige är inte längre någon stormakt, och försiktighet, men inte fjäsk är vad som krävs av en svensk diplomat vid det ryska hovet. Här uppfattas hans handlande inte som om han blivit förryskad utan det talas i stället om att han var svensksinnad och en skicklig diplomat som kunde uppehålla goda förbindelser mellan Sverige och Ryssland.

Avslutning

Palmstierna var konservativ, ja närmast reaktionär. Han försvarade den gamla ståndsriksdagen, han var emot lika arvsrätt mellan män och kvinnor, han tycks beundra Nikolaus den förstes resoluta ingripande mot dekabristerna. Anklagelserna för ryssvänlighet tycks ha fog för sig, men framför allt så var han anhängare av Nikolaus konservativa politiska livsåskådning. Det kanske också kan förklara hans förödande kritik av Alexander den förste.

Palmstierna ersattes som sändebud i Petersburg av Gustaf af Nordin som tidigare hade varit sekreterare och alltså underställd Palmstierna. Det finns många bevarade brev från Nordin till Palmstierna från de perioder då Palmstierna var hemma i Sverige. Breven handlar om hovliv, vardagligheter, gemensamma bekanta.

Också Nordin kände Puškin, vilket framgår av det bevarade brevet från Puškin till Nordin och den ryske nationalskalden nämner Nordin i sin dagbok. Nordin skriver ett långt brev med många detaljer till Palmstierna om Puškins död 1837 (Bodin 1984, 78–88). Nordin gifte sig med en ryska från en aristokratisk familj, Elena Ščerbatova.

Palmstierna blir en katalysator för en debatt om det ryska språket, en i raden som knyter an till Bronsryttaren, en iakttagare av dekabristupproret. Som anhängare av enväldet och som galen kortspelare passar han också och på alla sätt in i Petersburgsmyten.

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Topographical Imagination in Marina Cvetaeva's "Pis'mo", "O Germanii", and "Natal'ja Gončarova"

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Abstract

In a substantial number of her texts – poetry as well as prose – Marina Ivanovna Cvetaeva (1892–1941) constructs contrasting dimensionalities: one-dimensional lines, two-dimensional planes, and three-dimensional objects are set in contrast to one another. She juxtaposes squares and flat surfaces with open landscapes, towers, and cathedrals. These motives are frequently articulated through geometric imagery, yet they have thus far received little analysis or commentary in the scholarly literature. My hypothesis is that they are metaphorical ways of structuring and categorizing the world, and that they are significant across several of her writings, beginning with her debut collection *Вечерній альбомъ* (1910). In my opinion they merit closer scrutiny.

My secondary claim is that Cvetaeva's planar surfaces, on the one hand, and objects with height and depth on the other, can be read as a highly personal engagement with features of contemporary artistic movements, such as Cubism. Of particular relevance in this regard is her 1929 essay on the artist Natal'ja Sergeevna Gončarova (1881–1962).

Cvetaeva's topographical motives in research literature

Topography – especially landscape – in literary texts has throughout the history of literature served as a medium for expressing inner states. With the emergence of modern cities, cityscapes likewise became mirrors of new existential experiences and

situations, as in the German Expressionist poet Georg Heym's "Gott der Stadt" (1910), where factory chimneys, their smoke, and lights resemble an evil, flaming and angry god who rules over industrial society and devours its inhabitants at night. Although contemporaneous with the Expressionists, but not affiliated with any school, Cvetaeva's antropomorphic cityscapes bear – as I shall argue – certain affinities with this strand of modernism.

Some aspects of what we may call Cvetaeva's 'topography' have been described in the literature on her work. Alexandra Kirilcuk has convincingly elucidated the "spiritual topography" in "Поэма конца" and other texts, noting "how Tsvetaeva makes Prague into a kind of private semiosphere, a space imbued with intensely personal meaning" (Kirilcuk 2006: 196). Anja Burghardt (2013) investigates in her book the spatial compositions ("Verortung") in a number of Cvetaeva's poems, and manages to show the significance of room, place, and space in her work as "a localization and a certain form of limitation" at the same time (2013: 185) – however not discussing the specific questions and texts I will focus on. Irina A. Litvinova (2017) has shown how Cvetaeva articulates the abstract notion of "work, creativity" through spatial and other oppositions (such as empty/full, closed/open, darkness/light). Furthermore, Roman Voitekhovich reminds us that "Давно отмечено, что поэтическое пространство Цветаевой организовано преимущественно вдоль вертикальной оси." (2021: 28) Voitekhovich interprets this vertical axis as a visualization of Cvetaeva's two worlds: inner/outer, life/death – contrasts that Litvinova analyzes as constituents of the creative process in Cvetaeva's idiolect.[1]

In this study I focus on the contrasts that Cvetaeva establishes by means of linear, two-dimensional, and three-dimensional imagery – a refinement of previous treatments of the broader category of "пространство" in her work. My claim is that these contrasts constitute an important field: a geometrically vizualized worldview. My secondary claim, namely the relatedness of this geometricity to the visual arts of her time, must first address a common position in Cvetaeva scholarship.

The standard view is that Cvetaeva was indifferent to the visual arts. Simon Karlinsky, in his two biographies on Cvetaeva (1966 and 1985), acknowledges the connection between modern Russian poetry and visual art in the crucial period 1895–1930, but assigns this primarily to Axmatova, Gumilëv, and Mandelštam, with Cvetaeva standing apart; she "only remotely" connects to the movements of her time.[2] Cvetaeva's own statements about hearing as her one and only sense apparently supports this. In her response to Boris Pasternak's request for a résumé of her life and work in April 1926 (for a planned encyclopedia of twentieth-century writers) Cvetaeva

[1] See also Orlova 1991: 340–341, and her references to vertical motion in for example "Поэма воздуха". Orlova reads Cvetaeva's "пространство" as a symbolically undefinable openness.

[2] The three acmeists "developed poetic styles closely patterned on the current development in the visual arts, especially Cubism, with its unexpected shifting of planes and its use of elementary shapes and primary colors." (Karlinsky 1966: 3)

writes at the end: “Любимые вещи в мире: музыка, природа, стихи, одиночество. Полное равнодушие к общественности, театру, пластическим искусствам, зрительности” [3] This might be partly explained psychologically “as a way of distancing herself from her father’s work establishing the Museum of Fine Arts in Moscow” (Blasing 2017: 192, n. 4), but more importantly, given that she was indeed interested in theatre, wrote dramas, and also went to the movies (reportedly with Natal’ja Gončarova) one should be cautious about taking such categorical statements at face value.[4] In my context, it is her *use* of figures and forms that will matter.

Major advances in understanding Cvetaeva’s complex – yet undeniably existing relationship to the visual arts, if not to specific schools, have been made by Pamela Chester (2000) and Molly Th. Blasing (2017). In her article on Cvetaeva and Gončarova, Chester seeks to identify “formal affinities between the two in terms of their representation of landscape”, and argues that they “established separate territory from their male colleagues”, which connects them to earlier women writers and artists (Chester 2000: 280). A few years earlier, Aleksandar Flaker had highlighted their shared interest in unexpected modes of expression (Šklovskij’s “остранение”) and in space: “Гончарова в понимании Цветаевой – художница открытого, но не бесконечного, пространства” (Flaker 1994: 4). Blasing’s analysis of Cvetaeva’s own photographs renews the discussion and extends it to how Cvetaeva understands and uses visual art. We may therefore now, with greater confidence, say that only under certain premises does Cvetaeva have a non-relation to the visual arts.

This does not mean, of course, that she simply adopts painters’ ways of seeing. Gertrude Stein’s well-known attempts to convert Picasso’s Cubism into textual structures provide one model;[5] but Cvetaeva did not pursue this kind of ambition. As Blasing comments: “The extent to which Cvetaeva considered the intersection of verbal and visual art in light of Symbolism’s goal of transcendent vision or Malevič’s and Kandinsky’s experimentation with non-representational art is difficult to determine.” (Blasing 2017: 236) The “Black Square” of Kazimir Malevič (1878–1935) is quite different in its intention from Cvetaeva’s dark execution square in the poem “Письмо”, which I will discuss below.

At the same time, we can identify visual forms in Cvetaeva’s work and show their resemblances to, for example, Cubist paintings. More important, however, is to show how geometric shapes and their interactions enable her to describe certain modes of human perception and thought in a highly original way.

Topographical and geometric motifs appear in many of Cvetaeva’s poems; in the following, I will show their importance in the poem “Письмо” (1923), then turn to her

[3] *Собрание сочинений в семи томах*, Том 4: *Воспоминания о современниках. Дневниковая проза*, 624 (= Цветаева 1994–1995; in the following, the Collected Works are cited as *Собр. соч.* volume number: page number).

[4] Cvetaeva’s rejection of vision as nonpoetic has been analyzed, as Blasing recounts, by for example, Alyssa W. Dinega (2001). Cf. Blasing 2017, 192–194.

[5] Cf. Altieri 1989, 240–247, and Lloyd 2022, 13–58.

diaries – namely the text “О Германии” (1919), and, finally discuss the essay “Наталья Гончарова (Жизнь и творчество)” (1929).

“Письмо” (1923)

“Письмо” is a poem of 21 lines – four stanzas with a final one-liner – written in Prague, dated August 11, 1923, and published in Cvetaeva’s major collection *После России* (Paris, 1928; *Собр. соч.* 2: 217). The poem’s “I” waits for a letter that never arrives. The title then can refer both to the anticipated letter, and to the poem itself, read as a letter sent to the one who does not write. The biographical context of the poem, the author’s sense of loneliness at the time of writing, is documented in her letter to A.V. Baxrax, 27.8. 1923 (*Собр. соч.* 6), as Aleksandr Sumerkin, the editor of the five volume edition of Cvetaeva’s poetry reports (Цветаева 1983: 459).

The “I” compares this situation to long and painful waiting for the end, and even worse, to execution: “Так ждут – конца: / Солдатский салют / И в грудь – свинца / Три дольки.” Initially, the letter promises happiness: “Внутри – словцо / И счастье. И это – всё.” But when the “I” has given up waiting, the letter is transfigured into death in the courtyard, bringing together the shape of the letter with the square where the soldiers stand ready to fire: “Квадрата двора / и черных дул. // (Квадрата письма: / Чернил и чар!)” And, as Renata Ingbrant suggests (1998: 55), “The last line ‘квадрата письма’ (‘a square of a letter’) presents us with the total dissolution of the lyrical subject.”[6]

Noteworthy in “Письмо” is also the unusual shape of the letter: it is squared, derived from the courtyard’s outline, which lends the character of an abstraction. The square, and by conflation, the letter, signifies isolation, unhappiness, and even lethal threat. The “I”’s fruitless longing for a letter merges with the demonized square.[7] The square and the letter also contrast with the circular shape of the black muzzles (“дул”) firing at her,[8] and in a way they liberate her from the constraints of the prison-like square and the letter that does not appear. Irina V. Logvinova observes that the line structure of the poem, consisting of paired iambic units (e.g. “так ждут – письма”) echoes the square’s geometry through their two stressed syllables, “ритмически образующая фигуру квадрата.” (Logvinova 2022: 49) Furthermore, she notes that the pattern of 6 + 6 + 4 + 4 + 1 lines may be read as a visualization, or repetition, of a

[6] Renata Ingbrant’s article is also an important contribution to understanding juxtaposed gender relations in “Письмо” – the word “стара” revealing that the “I” is a female. (Ingbrant 1998: 53)

[7] Cf. Ieva Vitins, who, in her article “A Study of Tsvetaeva’s Elsewheres” notes that Cvetaeva’s extremely difficult life may explain her aversion to closed, horizontal spaces: “The pressure and demands of such an existence assumed in her work the shape of an enclosed space, a prison from which she sought an exit.” (Vitins 1977: 649) See also “Мои службы. Воспоминания”, notes from 1918–1919, published 1925, where Cvetaeva describes obtaining potatoes during the hunger and cold of the winter of 1919: “Сначала беснующимися коридорами, потом сопротивляющейся лестницей, – слезы или пот на лице, не знаю […] Собственную беду везем! […] Боюсь площадей.” (*Собр. соч.* 4: 470)

[8] I thank the anonymous reviewer for this observation.

letter comprising two square-sized pages (the first two stanzas), then folded to fit into an envelope (the two following stanzas), with a concluding key line. (Logvinova 2022: 51)[9] In "Письмо", abstraction is also evident in the deviation from, or, rather, the simplification of the colours of reality. Here they are reduced, in a manner reminiscent of Suprematism, to black (the muzzles) and red (the eyes of the "I" being shot) – which the wind blows away: "Цвет – ветер сдул!"

A poetics of colours emerges as well in the essay on Natal'ja Gončarova, where Cvetaeva identifies the painter's basic colours as black, white, brown, and red, and reflects on how colours function analogously in literature and visual art: "(В красках, как в слове, яркость, очевидно, вопрос соседства, у нас – контекста.)" (*Собр. соч*. 4: 113, cf. also Flaker 1994: 6). The parallels between the use and contrasting of colours in writing and painting are clear to Cvetaeva, and she employs colours symbolically.[10] The importance of "context" points towards practices of highlighting, contrasting, juxtaposition – procedures central to Gončarova's art and, more broadly to modernistic painting where the plane often supersedes central perspective.[11] But before going into depth on Cvetaeva's essay on Gončarova, I will turn to the diary entry "О Германии", where the symbolic charge of the square is even more pronounced.

"О Германии (Выдержки из дневника 1919 г.)" (1925)

"О Германии" was written in Moscow in 1919, and later published in the Russian émigré newspaper *ДНИ*, Berlin 13.12.1925. Cvetaeva's relationship to the German language, culture and literature is well known – quite a few of her favourite authors were German, such as H. Heine, J.W. von Goethe, and, last but not least, R.M. Rilke. Thoroughly investigated is her and Boris Pasternak's 1926 epistolary friendship with Rilke in the year of his death. In 1922 Cvetaeva left Russia for Berlin, where she stayed for part of the summer. From there she traveled to Prague, where she lived from 1922 to 1925. From 1925 to 1939, before the fatal return to the Soviet Union, Paris was her city.

[9] Another instance of such confluence of geometric form, theme, and poetic structure appears in the poem "Два в квадрате" (1910; *Собр. соч.* 1: 81). Here two couples are locked in an instable 'squared' relation, reinforced by the poem's 'square-shaped' 2x2 lines, arranged almost as a figure poem. This poem was published 1910, in her debut collection *Вечерній альбомъ*, which demonstrates that Cvetaeva already at this time used the square to visualize difficulties and dilemmas in life. – On Cvetaeva's extensive use of numbers in structural and associative ways, see also Voitekhovich 2021.

[10] "В цветовой картине мира М. Цветаевой семантика белого цвета связана с пустотой, семантика черного – с полнотой". (Зубова 1993: 181) A note on how Gončarova "discovered" black as a colour during her stay in Spain confirms this: "[…] черный цвет, черный не как отсутсвие, а как наличность. Черный как цвет и как свет." (*Собр. соч.* 4: 113)

[11] Cf. Cvetaeva's remark on this subject about Gončarova's student years: "(Не знала тогда Гончарова, что когда-то будет возглавлять плоскостную живопись, в противовес – глубинной.)" (*Собр. соч.* 4: 95)

"О Германии" is written in a tone of passionate laudation of Germany and German culture and of Cvetaeva's deep connectedness with the country and its language. The following passage, an imagined dialogue especially relevant in my context, is, however an example of a somewhat different approach to Germany:

> Погодите, будет час, так же будете оплакивать героическую Германию, как ныне героическую разоренную Францию. Нынче – Реймский собор, завтра – Кельнский: *высоты мешают веку*! Это не ненависть германцев к галлам, галлов к германцам, это ненависть квадрата – к шпилю, плоскости – к острию, горизонтали – к вертикали.
> Реймский собор для меня больше рана, чем для вас: в нем *свершилась* моя Иоанна! – и, оплакивая его, оплакиваю больше, чем вы: не Иоанну, не Францию, – век костров смененный веком железобетона! (*Собр. соч*. 4: 553f.)

How can geometric or topographical phenomena possibly hate one another?[12] We must, of course, loosen our hold on realist conceptions and expectations, and instead, as Pamela Chester claims, when writing about Cubism and the art of Gončarova, concentrate on the sense that space establishes: "We must assemble a sense of space and its meaning based on the contradictory planes the artist has created. Space becomes a powerful trope, taking on symbolic and even spiritual dimensions." (Chester 2000, 283) In "О Германии" Cvetaeva remembers the thirteenth-century Gothic cathedral of Reims. German artillery fired at it regularly throughout the First World War, from September 1914 to March 1918, destroying great parts of it. Mourning this destruction, she at the same time prophesies the fall of the "heroic Germany". The word "heroic" sounds uncanny and problematical in many senses today – after the years of the Nazi regime and the Holocaust. It is, however, difficult to say whether Cvetaeva's words can be read as prophecy at all; what could she possibly have foreseen of the industrialized murders and war that were to come a few years later? In any case, this passage conveys a sense of horror, which arises from the way she combines a critique of modern, horizontal concrete constructions, and the destructive power of modern warfare, with the disregard in our time for sacred, vertical architecture.

In Cvetaeva's diary – pre-1933, one must bear in mind – war history, and future Franco-German relations are sketched in terms of a moral relationship between horizontal and vertical lines, between the two-dimensional squareness of our time and the three-dimensional architectural beauty of the famous cathedral. Architecture and geometry are used as metaphors in a somewhat bewildering, but striking way: the hatred of the time transferred to the realm of humankind's constructions.

She continues – seemingly detached from the realities of the recently ended war – by aligning herself with Joan of Arc, who as part of her brave acts in liberating France from the English siege, helped King Charles VII to be crowned in Reims 1429 (two

[12] Cf. also this passage from Cvetaeva's essay on Gončarova: "Ненависть крестьянского континента России к 'месту пусту' – океану, ненависть крестьянина к безделью." (*Собр. соч.* 4: 106)

years before she was burned at the stake in Rouen). Cvetaeva's sorrow for the ruined cathedral is compared to her grief over modern architecture, and the century of towering flames from execution by burning is preferable to our century of flat concrete. A provocative image and comparison, indeed.

But, is it also possible to interpret the image of "Великое согласие высот" (*Собр. соч*. 4: 554) – a metaphor where harmony in the human realm joins the vertical shape of a cathedral – as sorrow for forgotten 'higher' ideals, which may also encompass liberty and humanism? There are signs pointing in that direction in the diary entry "Вольный проезд" (1918), from the tumultuous and chaotic times of civil war following the revolution. At a railway station, people are shouting, believing that somebody had trampled down a child, who however manages to get up again: "– Ребенка задавили! Ре – бенка! Ре – Лежачая волна – дыбом. Горизонталь – в стремительную и обезумевшую вертикаль." (*Собр. соч*. 4: 449) As we have seen, plains, squares, and battlefields often stand in contrast to cathedrals and heights in Cvetaeva's imagery. Here, once again, the planar square is associated with violence, and the vertical edifice with hope and resurrection. This image is developed further in other texts which contain the motif of "constricted landscapes" (cf. examples in Chester 2000: 83–84) and last but not least in Cvetaeva's essay on the artist Natal'ja Gončarova.

"Наталья Гончарова (Жизнь и творчество)" (1929)

The essay was published as a feuilleton in Mark Slonim's Prague journal *Воля России*, 1929 (Nos. 5/6, 7, and 8/9). Cvetaeva met with Gončarova in 1928 at Slonim's initiative, and she visited her regularly while working on the text. As an artistic response, Gončarova prepared a series of illustrations for Cvetaeva's poėma-skazka "Мóлодец" (first published in 1924), a work Cvetaeva herself had translated into French in 1930 but which was never published during her lifetime, because she was "dissatisfied with the result" (Karlinsky 1966: 80).[13]

Karlinsky characterizes Cvetaeva's essay as her "attempt at writing about things she knew little about and did not really love. […] The near-sighted poet did not really care for the visual arts […] regarded as a monograph on a painter it is without any doubt a failure." (Karlinsky 1986: 197–198) This view has, as I already have mentioned above, become commonplace in the цветаеведение (cf. further Karlinsky 1966: 273–274; Slonim 1971; Саакянц 1997: 515, Schweitzer 1992: 301 [Schweitzer quoted in Blasing 2017: 191]). One must ask whether this judgement is fair. I have already noted Cvetaeva's awareness of parallels between painting and poetry, and there are other

[13] Cf. her own words on the matter in the interview "В гостях у М.И. Цветаевой (1931)", *Собр. соч.* 4: 626–627, referred to in Cvetaeva 2006: 32.

features of her work that argue against such a verdict – some of them to be found in the Gončarova essay.

There are many digressions in this text, seemingly irrelevant both to a conventional biography and to straightforward descriptions of paintings. However, I would argue that the essay can be read as a search for the center of Gončarova's art, for her paintings' shape, light and colour, and of common ground with Cvetaeva's own literary practice. Blasing reads the essay "as a painterly exercise in prose" (Blasing 2017: 218), and, before her, Mark Slonim – despite his remark that Cvetaeva "осталась довольно холодна" toward Gončarova's paintings – noted: "и рисунок и краски сливались у нее в некое общее впечатление, она переводила их на свой язык ритма и звуков" (Slonim 1971: 157).[14] This strategy constitutes a different kind of ekphrasis: it visualizes paintings through language not primarily by description, but through an act of translation or transfer from one medium to another, which is metaphorical in its very essence.

One section that clearly stage-manages conjunctions of art and poetry is the elaborate chapter "Две Гончаровы", on Puškin and his wife Natal'ja *Nikolaevna* Puškina, née Gončarova, the great-aunt of the artist Natal'ja *Sergeevna* Gončarova (her great-grandfather was Natal'ja Nikolaevna's brother). The chapter has prompted many interpretations, for example Liza Knapp's article on how Cvetaeva employs the two Gončarovas to explore the difference between life and art (Knapp 1992). Especially interesting in my context is Cvetaeva's juxtaposition of Puškin and his wife as "voids" to each other, as empty spaces, she as a zero, a mere beauty, lacking any understanding of the poet's genius: "Наталья Гончарова *просто* роковая женщина, то пустое место, к которому стягиваются, вокруг которого сталкиваются все силы и страсти. Смертоносное место." (*Собр. соч*. 4: 84) Puškin, on his side was attracted to her because of his own "overabundance": "тяга гения – переполненности – к пустому месту" (*Собр. соч*. 4: 85). And, in return, for her, Puškin was also a kind of empty space: "Он хотел нуль, ибо сам был – всё. И еще он хотел того всего, в котором он сам был нуль." (*Собр. соч*. 4: 85)

As Ljudmila Zubova has shown (1993), Cvetaeva uses the notion "место пустое" (with variations) in analogy with an archaic phraseologism in Church Slavonic Bible translations (e.g. Matthew 14, 13):

> В евангелиях 'место пусто' – это необитаемое место вдали от города – место, где Иисус Христос проповедовал и творил чудеса […] В славянских заговорах пустое место маркировано противоположным образом: это место, куда отсылаются болезни и несчастья, место обитания нечистой силы, место за гранью жизни, в мире мертвых. (Зубова 1993: 177)

[14] Cvetaeva's attitude toward and interest in Gončarova's paintings is confirmed in the collection of letters from Cvetaeva to Gončarova (in Cvetaeva 2006), and the accompanying commentary by N.A. Gromova.

The examples Zubova highlights in Cvetaeva's writings show all these variations, and in the essay on Gončarova, the empty-space notion is equally complex: it is both a point of departure for creativity and a void, pure emptiness, with isolation as its consequence, as Puškin and his wife were for each other. There are good reasons to understand not only the chapter on Puškin and his wife – used to dramatize the contrast between the two Natal'jas – but also the digressions into the Paris cityscape as attempts to enter the world of Gončarova's creativity and art.[15]

To grasp Cvetaeva's literary engagement with Gončarova's painterly avant-gardism, it is necessary to reflect once more on the vocabulary of forms, squares, places, horizontal movements, towers, in short, Cvetaeva's poetic realization of geometry, which is related to, but in no way a weak response to or a mere echo of, the artist's work. At the same time, one must not forget that Cvetaeva was keenly aware of the various artistic currents of her time. She explicitly lists them in her description of Gončarova, who, Cvetaeva argues, "была в свое время, вернее, вела свое время под меняющимися флажками импрессионизма, футуризма, лучизма, кубизма, конструктивизма". (*Собр. соч*. 4: 120)

A. Flaker observes that Cvetaeva, in her essay on Gončarova emphasizes the architectural modality of the latter's paintings, quoting a central passage from the second section: "Всё от собора: и створчатость, и вертикальность, и каменность, и кружевность." (*Собр. соч*. 4: 125; cf. Flaker 1994: 2) The epithet "cathedrals" was applied to Gončarova's paintings by an unnamed critic in a French newspaper, a term that Cvetaeva returns to several times throughout the essay: "[…] – упрек одного критика: 'Да это же не картины, это – соборы!'" (*Собр. соч*. 4: 70) She must also have discussed this with Gončarova herself, whom she renders: "'Была минута, когда я могла стать архитектором.' Этого критик, коривший ее за 'не-картины, а соборы', не знал. Очевидно, в каком-то смысле зодчим – стала." (*Собр. соч*. 4: 95)

For Cvetaeva, the cathedral, with its three dimensions and its upward-striving lines, is not an "упрек" but a sign of great, liberating artistry. When she turns to Gončarova's childhood, she further develops this image of the artist as a constructor (her father was an architect). She begins with a description of the family house in the village Ladyžino (Tula Governorate), in Cvetaeva's words a run-down building, awaiting either demolition or reconstruction. The paragraph ends by linking this to Gončarova's art, her 'trademark', the cathedrals: "Законченные 'соборы' Гончаровой – *нет* всем недостроенным домам." (*Собр. соч*. 4: 76) Cvetaeva finds the origin of the constructor Gončarova also in the young girl's paper garden: "У подножия тех соборов – та картонка." (*Собр. соч*. 4: 80) The "картонка" refers to

[15] Cvetaeva herself described her understanding of the paintings as "примечания к сущности, никогда бы не осуществленной, если бы не они". Her ambition was to describe this essence from within the portrayed artist: "Мой подход к ней – изнутри человека, такой же, думаю, как у нее к картинам. Ничего от внешнего." (Letter to A. Teskova 19.2. 1929, *Собр. соч.* 6: 376, quoted from Cvetaeva 2006: 27.)

Gončarova's childhood memories: "Вырезались из бумаги кусты, деревца и расставлялись в коробке. Четыре стенки – ограда. Законченный сад. […] Гончаровские соборы из глубока росли!" (*Собр. соч*. 4: 76, 78) The comparison between the simple cardboard box and the sophisticated architectural structure of a cathedral establishes both a contrast and a connection between the child and the mature artist. And, through her insistence on the cathedralic nature of Gončarova's paintings, Cvetaeva succeeds in transforming the critic's negative judgement into a positive characterization within her own geometric poetics.

The first part of the essay, "Уличка", is also of great importance. Here Cvetaeva describes her walk through narrow Parisian streets and courtyards as a passage between steep walls, like claustrophobic "prison corridors", as in a "cage". She tries to find her way to the artist's studio, in the verbless style typical of Cvetaeva: "Не уличка, а ущелье, а еще лучше – теснина." (*Собр. соч*. 4: 64) Having arrived at the correct courtyard, she imagines it paved by giants: "Не люди мостили, великаны играли. Я камень, ты камень, я больше, ты еще больше, я глыбу, ты – гору." (Собр. соч. 4: 66) After a while she sees light through a passage: "... – проход! Световая щель." (*Собр. соч*. 4: 67) Finally, she reaches the stairs leading to Gončarova's "Мастерская" in 13, rue Visconti:

> Если двор – великаны мостили, то лестницу они уже громоздили. Игра в кубики, здесь – кубы. […] Следы той же игры, веселой для них, страшной для нас. (Так и большевики веселились, а мы боялись, так и большие веселятся, а дети ...) […] Гончарова к себе идет по старым мастерам, старейшему из них – времени. (*Собр. соч*. 4: 67)

The arrival in Gončarova's studio: "Первое: свет. Второе: пространство. После всего мрака – весь свет, всей стиснутости – весь простор." (*Собр. соч*. 4: 68)[16] In Cvetaeva's perception, Gončarova's art thus leads away from narrow and inhospitable spaces, upwards into openness, into the room's third dimension, into light. Noteworthy in this context are the cubic stairs, as if Cvetaeva were viewing the Parisian courtyard through the lens of the artist's cubist paintings. She walks to Gončarova's atelier along the path she imagines the artist took to her own position: a conjunction of old masters and dynamic urbanity, and of different schools of art. With the giants introduced, Cvetaeva offers a reinterpratation of Gončarovas' art and cityscapes within what we might call her geometrical mythology.

Conclusion

This geometrical mythology recurs throughout the texts examined here: in the menacing "квадрат двора" of "Письмо", the hateful square in "О Германии", and in

[16] Litvinova (2017: 187) uses this sentence, with its contrasts of darkness/light and narrowness/open space, to argue that emptiness in Cvetaeva's thinking is a necessary condition for creation, which the example of Puškin and his wife further confirms.

the “тюремный корридор” of the Gončarova essay where giants have constructed courtyards. These spaces, the death-zone square in “Письмо”, the square saturated with hatred in “О Германии”, and the narrow Parisian courtyards and passages, are invested with their distinctive ‘spirit of place’, a haunting *genius loci*. That genius loci functions not merely as a metaphor for atmosphere, but as a mask, a prosopopeia, a personified presence.[17]

This anthropomorphization of cityscape is sometimes countered by vertical elements – cathedrals and other upward lines that interrupt the planar logic – and at other times these verticals symbolize resurrection. The juxtaposition of planes and heights in Cvetaeva’s work is not merely a matter of historical period and modernity’s negative aspects (as in “О Германии”) or of intimacy versus isolation (as in “Письмо”), nor solely a conflict between death and life (as in the poem and the railway-station scene with the child). It is also a question of the conditions of creativity in a broad sense, as in the Gončarova essay. The voids are dangerous: zeros filled with fear and loneliness, ruled by personified negativity, yet not without hope, they possess a form of potentiality in their counterintuitive “полнота” (Zubova 1993: 181).

This article aims to encourage further analysis of the topographical dimensions in Cvetaeva’s œuvre, and more specifically of how stairs, squares, cubes, and empty spaces mark the limiting, and paradoxically promising, side of life, while vertical structures, open spaces without limits, and cathedrals function as zones of light and uplift that allow life and creativity to emerge from the planar domains of existence.

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[17] This passage is inspired by J. Hillis Miller’s interpretation of «the genius of the sea» in Wallace Stevens’s poem «The Idea of Order at Key West» (Hillis Miller 1995: 265–267).

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Peer-reviewed article

Disparate Language Cultures – Russia's language policies in temporarily occupied Ukrainian territories in historical perspective

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Abstract

This article examines Russian language policies in the temporarily occupied territories of Ukraine in light of historical precedents. It shows how current policies of Russification echo imperial practices from the nineteenth century, identifying recurring ideological tropes in Russian discourse depicting Ukrainian as a dialect, an artificial construct, or a dangerous political project. These narratives are shown to be part of a broader imperial tradition that claims authority to define linguistic reality and uses language as a tool of political control. In contrast, the article reconstructs a Ukrainian perspective through debates in the journal *Osnova* (1861–1862), highlighting a pragmatic and inclusive approach to language development, grounded in usage, variation, and communicative function. These dynamics can be productively understood within a broader framework of differing language cultures, with Russian traditions tending toward prescriptive and hierarchical models, and Ukrainian language culture toward performative, pluralistic, and practice-oriented forms.

1. Preamble

In September 1861, Vasyl Bilozerskyj, editor of the Ukrainian journal *Osnova* – the main venue for debates about the Ukrainian language during the two years of its existence – published an editorial laying out the journal's programme for the upcoming year 1862. He writes:

> Вопросъ – *быть или не быть* нашей словесности? еще недавно состявлялъ предметъ спора для многихъ; но его разрѣшила утвердительно сама жизнь, неподдающаяся никакой предвзятой теоріи. Никто теперь не скажетъ, что украинской словесности *нѣтъ*, какъ, бывало, говорили и писали прежде. (Bilozerskyj [Belozerskij] 1861: 2–3; italics in the original)[1]

> The question whether our written culture *should or should not exist* has until recently been a topic of debate for many; but life itself has resolved it in the affirmative, defying any preconceived theory. […] No one can say now that a Ukrainian written culture *does not exist*, as they used to say and write before.[2]

Two years later, on 27 June 1863, interior minister in the Russian empire, Petr Valuev, received a letter from Orest Novyc'kyj, head of the Kyiv Censorship Committee, urging him to "[…] принять какие-либо меры против обнаруживающегося стремления некоторых малороссов, а совместно с ними и поляков, отчуждать здешний народ от общерусских языка и народности." (Novyc'kyj [1863] 2015: 73) ("take measures against the apparent aspirations of some Little Russians, and together with them Poles, to alienate the local people from the common Russian language and nationality"). Novyc'kyj states that:

> [большинство малороссиян] […] весьма основательно доказывают, что никакого особенного малороссийского языка не было, нет и быть не может, и что наречие их, употребляемое простонародьем, есть тот же русский язык, только испорченный влиянием на него Польши, […] (Novyc'kyj [1861] 2015:72)

> [most Little Russians] […] argue quite convincingly that a distinct Little Russian language did not, does not, and cannot exist, and that their dialect as spoken by the simple folk is the same as the Russian Language, only corrupted by the influence from Poland, […]

Three weeks later, these famous phrases went into the Valuev circular of 1863,[3] banning the use of Ukrainian in a range of genres, in particular, those most relevant for basic general education. This was a hard blow for ongoing Ukrainian efforts to educate peasants and their children, an endeavour reflected by at least six Ukrainian-language primers published between 1857 and 1861 (see Figure 1).[4]

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[1] The orthographic conventions applied in the various cited editions have been retained. This inter alia means that in some instances, pre-revolutionary spelling has been modernized, while in others it remains unchanged. All translations are my own.

[2] The passage echoes similar phrases from the 1861 programme, published in the very first volume of *Osnova*, but seems to have gained a little in confidence: "Въ наше время, число болѣе или менѣе даровитыхъ южно-русскихъ писателей увеличивается съ каждымъ годом; въ наше время, вопросъ – можно ли и слѣдуетъ ли писать по-южно-русски, или, что́ все равно, – по-украински, разрѣшенъ самимъ дѣломъ." (Osnova 1, 1861, 2). ("These days, the number of more or less talented Southern Russian writers is growing every year; these days, the question of whether it is possible and appropriate to write in Southern Russian, or, what amounts to the same thing, in Ukrainian, is resolved by the matter itself."). "Southern Russian" and "Little Russian" are common nineteenth-century imperial terms for Ukrainian.

[3] For broader historical context on the Valuev circular, see, among others, Saunders 1993, Remy 2017, Šandra 2015, Moser 2017, with references.

[4] Among the authors of Ukrainian-language primers were leading Ukrainian writers such as Taras Ševčenko and Pantelejmon Kuliš.

2. Introduction

This article takes as its starting point the language policies implemented by Russian occupation authorities in the temporarily occupied territories of Ukraine.[5] Drawing on statements published in official and semi-official sources, I examine what these texts reveal about Russian conceptions of the Ukrainian language and how their ideas echo patterns rooted in the imperial tradition. However, I also have a broader, more ambitious goal: to propose a framework for thinking about differences in the *language cultures* of Ukrainian and Russian. Here, my aim is to broaden the perspective when discussing in what ways, and to which degree, Ukrainian is different from Russian, or vice versa. It is a question that comes up in many contexts, linguistic, political and cultural.

Let me unpack this a little. The question "How different are Ukrainian and Russian?" is usually answered by referring to a particular percentage of common vocabulary (62%), which is in turn compared to percentages of common vocabulary between, say, Ukrainian and Polish (70%), or Ukrainian and Belarusian (84%).[6]

If we look beyond vocabulary and delve deeper into the question, we find numerous structural similarities between Ukrainian and Russian, but also significant differences. The latter include distinctions in noun and verb morphology, the presence of a synthetic future form in Ukrainian, significant variations in the quantity and use of particles, and many others. We can also point to differences in the alphabets, (historical) phonetics and pronunciation, and, not least, in the historical and political contexts that shaped the emergence and development of their respective standard languages.

This last category brings us to the topic of *language culture* or the slightly narrower notion of *linguistic culture*, which Harold Schiffman defines as:

> […] a set of behaviors, assumptions, cultural forms, prejudices, folk belief systems, attitudes, stereotypes, ways of thinking about language, and religio-historical circumstances associated with a particular language. (Schiffman 1996: 5)

Language culture is a broad concept encompassing everything that occurs on the margins and in the contexts of a language's existence and life in a society. It has to do with language policies, linguistic ideologies or ideas about language, language attitudes, linguistic usage and linguistic reflexivity: debates about language.

In this article, my claim is that language culture represents a domain – perhaps the domain – where Ukrainian and Russian diverge most profoundly. I will be concerned with *ideas about language* and my primary focus will be on Russian conceptions of Ukrainian, as reflected in the discourse accompanying language policies implemented in the occupied regions of Ukraine, and in selected historical parallels, most of them

[5] As of April 2026, Russia occupies approximately 20% of Ukraine: Crimea in its entirety; parts of Kherson, Zaporizhzhia, Donetsk and Luhansk regions.

[6] Figures according to *Ethnologue: Languages of the World,* https://www.ethnologue.com/language/ukr/.

dating from the early 1860s. In the final section, I will complement this discussion with brief insights into Ukrainian conceptions of their own language, with particular attention to the years preceding the Valuev circular.[7]

3. Language policies in the temporarily occupied territories of Ukraine

Our main sources on developments in the temporarily occupied territories of Ukraine include reports from human rights organizations, regular occupation updates from the Institute for the Study of War, and ongoing reporting on language policy from the State Language Protection Commissioner of Ukraine (e.g. Hird 2024; Human Rights Watch 2024; Luhansk Regional Human Rights Center "Alternative" 2025; Upovnovaženyj; see also Bækken 2025; McGlynn 2026; Pidkujmuxa 2026).

Language policies in the occupied territories have followed somewhat different trajectories in Crimea, the so-called DNR (Donetsk People's Republic) and LNR (Luhansk People's Republic) and, since 2022, in the occupied parts of Donetsk, Luhansk, Zaporizhzhia and Kherson regions. Overall, however, Russia's approach to language policy in occupied Ukraine can be broadly summarized as follows:

1. Russia has implemented extensive "re-education" measures that amount to indoctrination and incorporate elements of militarization. These policies are most visible in school subjects such as history, literature, language, and culture, where curricula are redesigned to align with Russian narratives. Children from the occupied territories are sent to "re-education" camps, many of which include military training.[8] Teachers are either subjected to ideological retraining or replaced with personnel brought in from Russia, while Ukrainian textbooks are removed and replaced with Russian ones or new materials prepared specifically for the occupied regions. Beyond the classroom, Ukrainian-language books are systematically destroyed, and large-scale imports of Russian-language publications reinforce the ongoing process of cultural and linguistic assimilation.

2. In this process, Ukrainian is gradually downgraded from a language of instruction to a mere subject. Ukrainian lessons eventually become optional, upholding a façade of choice, before being abolished altogether – typically justified by claims of "lack of interest" among parents and, as of autumn 2025, by reference to "the changed geopolitical situation in the world." (Jačmennikova 2025).

[7] With reference to imperial times, what I here call "Russian" and "Ukrainian" conceptions largely reflect ideas shaped by representatives of intellectual and cultural elites. In the discourse accompanying Russian language policies the temporarily occupied territories of Ukraine, the picture is somewhat more mixed.

[8] Many of these camps are heavily militarized and some equal military training facilities, see, e.g., the recent documentary produced by the War Crimes investigation Unit of The Kyiv Independent (2025).

3. The official discourse that accompanies the linguistic policies reflects what Michael Moser (2023: 36–37) has dubbed a "double-bind" strategy: On the one hand, a stated appreciation of Ukrainian, often accompanied by some kind of legal structure, and, on the other, countless references to the artificiality, uselessness, etc of Ukrainian. This contradictory rhetoric serves to delegitimize Ukrainian while maintaining a veneer of compliance with linguistic rights.

Here, I will focus on the third point.[9]

4. Russian conceptions of Ukrainian – occupation policies and historical parallels

Official Russian discourse about the Ukrainian language draws on a set of recurring ideological clichés. Within this framework, Russian is frequently presented as the historically legitimate language of the region, reinforcing claims of cultural and political unity. At the same time, Ukrainian is portrayed as lacking authenticity and dismissed as an artificial construct unworthy of serious consideration. Such rhetoric often frames Ukrainian as a potential threat, while depicting its marginalization as both rational and historically inevitable. Breaking down these ideas reveals the following key components, which I will examine in more detail below:

- Ukrainian as a part of Russian(ness)
- Ukrainian as a dialect
- Ukrainian does not exist
- Ukrainian as artificial
- Ukrainian as linked to a range of bad/dangerous things (Nazism, Russophobia)
- Ukrainian as "beautiful", "charming" (but not to be taken seriously)

4.1. Ukrainian as a part of Russian(ness); Ukrainian as a dialect; Ukrainian does not exist

These three conceptions are widespread and often appear together. The first two points are illustrated in the following statements by Russian Member of Parliament Evgenij Fedorov, both made in September 2022:

> […] украинский язык является неотъемлемой частью российской культуры. (Fedorov 2022)

[9] I have not conducted digital fieldwork myself for this article. Most of the post-2022 examples I discuss are drawn from Michael Moser's survey on language policies in the occupied regions, covering the years 2014–2022 (Moser 2023). Moser has since updated his findings in two articles following the developments up until 2025 (Moser 2025; Moser 2026).

> Очень просто, это исторический, красивый, классический украинский диалект русского языка. Тот, который был в советский период, и ранее, в период существования Российской Империи. (Nesterova 2022)[10]

> […] the Ukrainian language is an indispensable part of Russian[11] culture.

> It is very simple: this is an historical, beautiful, classical Ukrainian dialect of the Russian language. The one that existed in the Soviet period, and earlier, during the existence of the Russian Empire.

The perception of Ukrainian as non-existent arises by implication out of statements about Ukrainian being a part of Russian, being a dialect, which we have seen already, or being artificial, as we will see in the following.

As is well known, this idea is part of Russia's imperial mindset that also determines the nature of the ongoing war, the idea that Ukraine or Ukrainian statehood does not exist, with the implication that neither does Ukrainian language, history or culture.

For the conceptions of Ukrainian as a dialect of Russian, "the same as Russian", or as not existing, the most famous historical parallel is, of course, the wording of the Valuev circular. Similar ideas appear in numerous other texts, not least in the months and weeks preceding the Valuev circular.

In a forceful attack on the Ukrainian movement, Russian journalist and editor Mixail Katkov published several articles where he attacked the Ukrainophile movement, seeing its origins in a Polish conspiracy. In his editorial in *Moskovskie vedomosti* 21 June 1863, he rejects the idea of a distinct Ukrainian language by rhetorically exclaiming: "Как будто возможны две русские народности и два русских языка […]!" (Katkov [1863] 2015: 68) ("As if two Russian peoples and two Russian languages could be at all possible!"), and extends the rejection to the existence of a Ukrainian history and a Ukrainian state:[12]

[10] This is Fedorov's response to a question concerning the concept of a "classical Ukrainian language," a notion that was, for a time, promoted by Russian officials with regard to the occupied territories. For a discussion of this concept, se Moser 2023; 2025, 2026.

[11] Fedorov here uses the adjective *rossijskij* (relating to the Russian state) rather than *russkij* ('Russian' in the ethnocultural or linguistic sense), thus claiming that the Ukrainian language somehow belongs to (the cultural sphere of) the Russian state.

[12] As Ukrainian historian Mykola Kostomarov responded to Katkov's attacks, the exchange developed into a fierce debate, where Kostomarov's last contribution was an article meticulously outlining, from a linguistic point of view, the differences between Ukrainian and Russian. He starts out with a quote from the distinguished Slavist Franc Miklošič (Franz Miklosich) who in his comparative Grammar of the Slavic Languages wrote: "Indem ich die sprachen nach der nähe ihrer verwandtschaft an einander reihe, behandle ich dann das kleinrussische, das auf dem gebiete der wissenschaft, wie die untersuchung selbst darthut, als eine selbständige sprache und nicht als ein dialect des grossrussischen anzusehen ist." (Miklosich 1852: IX; spelling of the original). Then, Kostomarov goes on to list, in considerable detail, differences covering phonetics, orthoepics, (historical) phonology, morphology, word formation, syntax, stress patterns and vocabulary (Kostomarov 1863). On the Katkov–Kostomarov debate, see Saunders (1993) and Moser (2017).

Украина никогда не имела особой истории, никогда не была особым государством, украинский народ есть чистый русский народ, коренной русский народ, существенная часть русского народа, без которой он не может оставаться тем, что он есть. (Katkov [1863] 2015: 69)

Ukraine has never had a separate history, has never been a separate state, the Ukrainian people is the pure Russian people, the indigenous Russian people, an essential part of the Russian people, without which it cannot possibly be what it is.

4.2. Ukrainian as artificial

The argument about Ukrainian as "artificial" is often combined with the idea of Ukrainian as created by somebody else, more often than not, an enemy. Journalist Vasilij Stojakin cites the following statement by Elena Panina, Director of the Institute of International Political and Economic Strategies in Moscow:

После многолетних издевательств на Украине закрепился не украинский язык, а его «канадійский діалект». Он вышел из-под пера бандеровцев в Канаде, где западноукраинский диалект «гармонично» дополнился искажёнными англо-, полоно-, германо- и другими «измами». Лишь бы не русскими. (Stojakin 2022)

After years of mockery, not the Ukrainian language but its "Canadian dialect" has taken root in Ukraine. It originated from the pens of Banderites in Canada, where the Western Ukrainian dialect was "harmoniously" supplemented with distorted Anglicisms, Polonisms, Germanisms, and other "isms". Just not Russian ones.

A similar mix of clichés is found in a statement by Sergej Markov, political analyst, former MP and former member of the Parliamentary Assembly of the Council of Europe:

Есть классический украинский язык – условно говоря, язык Тараса Шевченко, который очень близок к русскому языку и который любой русский человек понимает, поскольку является, по большому счету, вариантом русского языка.

А есть – современный официальный украинский язык, который является продуктом политтехнологов. Максимально насильственно дерусифицирован, русские слова заменены специально огромным количеством польских и английских слов. И этим искусственным украинским современным, можно сказать, тоталитарным, террористическим языком, пытаются сейчас учить разговаривать школьников официальные украинские власти.

Нам нужно ликвидировать этот искусственный язык, созданный террористическими методами, язык современных бандеровцев, политтехнологический антирусский язык. (Markov 2022) [Cf also 4.3]

There is classical Ukrainian – roughly speaking, the language of Taras Ševčenko, which is very close to Russian and which any Russian person understands, since it is, by and large, a variant of Russian.

And then there is the modern official Ukrainian language, which is the product of political technologists. It has been forcibly derussified to a maximum degree, with Russian words deliberately replaced by a huge number of Polish and English words. And it is this artificial modern Ukrainian language, which could be described as totalitarian and terrorist, that the official Ukrainian authorities are now trying to teach school children to speak.

We need to eliminate this artificial language, created by terrorist methods, the language of modern Banderites, a political anti-Russian language. [Cf also 4.3]

Once again, history offers numerous parallels. The Russian occupation of Galicja in 1914, marked by harsh Russification policies, bears notable similarities to today's occupation of Ukraine. Street signs were replaced by Cyrillic lettering (unfamiliar to local speakers of German, Polish, Romanian and Yiddish), schools were russified, the import of Ukrainian-language books from imperial Russia was banned, while teachers of Russian were brought in from imperial Russia.

In a 1914 memorandum, Russian member of parliament Dmitrij Čixačov referred to […] "существование глубоко враждебной России школы с преподаванием на польском, немецком и на искусственно созданном украинском жаргоне" (quoted from Baxturina 2000: 91) ("the existence of a school, deeply hostile towards Russia, teaching in Polish, German and an artificially created Ukrainian jargon"; while governor General Georgij Bobrinskij stated that "Теперь, когда Червонная Русь стала частью российской державы, искусственные успехи «украинской мовы» и фонетики должны рухнуть" (quoted from Baxturina 2000: 92) ("now that Red Rus has become part of the Russian Empire […] the artificial success of the 'Ukrainian language' and phonetics must be destroyed").

If we go further back in time, returning to the articles of Mixail Katkov, he derides the efforts of activists who seek to promote Ukrainian-language instruction in village and Sunday schools, dismissing Ukrainian as an "artificially constructed language":

> Явились новые Кириллы и Мефодии с удивительнейшими азбуками, и на Божий свет был пущен пуф какого-то небывалого малороссийского языка. По украинским селам начали появляться, в бараньих шапках, усердные распространители малороссийской грамотности и заводить малороссийские школы, в противность усилиям местного духовенства, которое вместе с крестьянами не знало, как отбиться от этих непрошеных «просветителей». Пошли появляться книжки на новосочиненном малороссийском языке. (Katkov [1863] 2015:68)

> There appeared new Cyrils and Methodiuses with the most amazing alphabets, and a puff of some unprecedented Little Russian language was released into the light of day. Diligent disseminators of Little Russian literacy began to appear in Ukrainian villages, wearing sheepskin hats, and to establish Little Russian schools, contrary to the efforts of the local clergy, who, together with the peasants, did not know how to fend off these uninvited "enlighteners". Books began to appear in the newly invented Little Russian language.

4.3. Ukrainian as linked to a range of bad things (Nazism, Russophobia)

In today's Russian conceptions of Ukrainian, reference is often made to Nazism, terrorism or Russophobia. In August 2022, Russian film maker and propagandist Nikita Mixalkov said that the Ukrainian language had lately become an "[образ] русофобии" ("image of Russophobia"), while "Словосочетания, которые мы слышим в украинской транскрипции или произношении – они для нас, для мира и для них самих являются формулированием ненависти к России." (Mixalkov 2022) ("Word combinations that we hear in Ukrainian transcription or pronunciation are, for us, for the world, and for themselves, an expression of hatred towards Russia.") His colleague

in the literary field, writer, propagandist and veteran of the Russo-Ukrainian war Zaxar Prilepin,[13] stated in June 2022 that Ukrainian would be taught in the newly occupied territories

> [к]ак часть огромной славянской и общероссийской культуры. А не как польскую русофобскую побрякушку. (Prilepin 2022)

> [a]s part of the vast Slavic and All-Russian[14] culture. And not as some Polish Russophobic trinket.

Such labels mirror broader propaganda discourse about Ukraine where, in particular, the Nazi label is routinely invoked. If we look for historical parallels beyond the post-WW2 era, a recurring view from the mid-nineteenth century onwards is to view Ukrainian as dangerous, subversive and closely associated with political activism. This can be seen already in count Aleksej Orlov's investigation report to the tsar 26 May 1847, accusing Taras Ševčenko of composing poems "на малороссийском языке, самого возмутительного содержания" (Kuryljuk 1982, 130) ("in the Little Russian language of the most outrageous content"). He writes: "Сверх того, что все запрещенное увлекает молодость и людей с слабым характером, Шевченко приобрел между друзьями своими славу знаменитого малороссийского писателя, а потому стихи его вдвойне вредны и опасны […]" (Kuryliuk 1982, 130) ("On top of the fact that everything forbidden attracts young people and those with weak characters, Ševčenko gained fame among his friends as a famous Little Russian writer, and therefore his poems are doubly harmful and dangerous […]"). Similar views became increasingly common over the next decades.

4.4. Ukrainian as "beautiful", "charming" (but not to be taken seriously)

This conception can be illustrated by a quote from a director of religious affairs of the Military-Civilian Administration of (the occupied parts of) Zaporizhzhia region:

> Есть песни на малороссийском наречии, есть определенная культура деревенская – это понятно, красиво, и ничего плохого в этом нет. (Tkač 2022)

> There are songs in the Little Russian dialect, there is a certain village culture – this is understandable, beautiful, and there is nothing bad about it.

Such stereotypes reflect a general stance of the nineteenth century (and, in a slightly modified version, of Soviet times), that of a tolerance for Ukrainian (folk) culture within the confines set by Russian intellectuals and authorities: Ukrainian is good for folk songs

[13] According to Russian news reports, Prilepin joined the Russian army in Ukraine again in October 2025.

[14] Just like Fedorov (see above), Prilepin here uses the adjective *rossijskij* (relating to the Russian state) rather than *russkij* ('Russian' in the ethnocultural or linguistic sense).

and comedy, but not for serious themes (cf. Koznarsky 2017). In a (favourable) review of the second edition of Ševčenko's *Kobzar'*, Nikolaj Dobroljubov revisits the debate earlier sparked by radical critic Vissarion Belinskij and others: "возможна ли малороссийская литература" ("whether Little Russian literature is possible"), stating that "стихотворения Шевченка именно тем и отличаются, что в них искусственного ничего нет" ("Ševčenko's poems are distinguished precisely by the fact that there is nothing artificial [i.e. relating to 'art'] about them"), before elaborating:

> Конечно, по-малороссийски не выйдет хорошо «Онегин» или «Герой нашего времени», так же, как не выйдут статьи г. Безобразова об аристократии или моральные статьи г-жи Тур о французском обществе. (Dobroljubov 1860: 99)[15]

> Of course, *[Evgenij] Onegin* or *A Hero of Our Time* would not work well in Little Russian, just as Mr Bezobrazov's articles on the aristocracy or Mrs Tur's moral articles on French society would not work.

In the words of Russian writer Il'ja Ėrenburg, "Украинский язык вырос и жил в деревне; пересаженный в кабинет философа или на улицу современного города, он поблек и зачах." (Ėrenburg [1919] 1997:333) ("The Ukrainian language grew and lived in the village; transplanted into a philosopher's study or onto the streets of a modern city, it faded and withered away.") In a classical three-stage model of nation building, the Russian conception of Ukrainian seems to have stopped at the first stage, focusing on expressions of folk culture.

What do these statements, and the historical parallels, reveal about prevailing Russian conceptions of the Ukrainian language? They point to a persistent desire on the Russian side to claim the authority to define what Ukrainian is (or is not); to a firm belief in the efficacy of linguistic policies, and to a tendency to frame language issues within broader questions of politics and identity. Today, as well as historically, such conceptions of the Ukrainian language are clearly instrumentalized in the articulation and justification of language policies. At the same time, the statements expose Russia's profound misunderstanding of the linguistic situation in Ukraine.

5. 1905 – A fresh view?

To gain insight into the historical persistence of such views, while also adding nuance to the picture, I will briefly examine a 1905 memorandum prepared by the Imperial Academy of Sciences at the request of the Minister of Education. It was prompted by a proposal to lift the restrictions on Ukrainian imposed by the Ems decree (1876) including its amendments in 1881.[16] Based on the recommendations of an expert group headed by Fedor Korš and including leading Russian linguists such as Aleksandr

[15] The reference is to V. Bezobrazov's articles and E. Tour's "Paris Letters" published in 1858 in *Russkij vestnik*.

[16] The Ems decree further restricted the use of Ukrainian in print, prohibited the import of Ukrainian books from abroad, and banned the staging of plays in Ukrainian. The decree was slightly modified in 1881.

Šaxmatov and Filipp Fortunatov, the memorandum advocated lifting the ban and concluded that,

> […] малорусское населеніе должно имѣть такое же право, какъ и великорусское, говорить публично и печатать на родномъ своемъ языкѣ. (Imperatorskaja Akademija Nauk'' 1905:III)
>
> […] the Little Russian population should have the same right as the Great Russian population to speak publicly and publish in their native language.

The memorandum questions the legitimacy of the nineteenth-century bans, describing them as "сцѣпленіе несчастныхъ случайностей" ("a combination of unfortunate coincidences") that led to the prohibition of the Ukrainian language. It argues that censorship should have targeted content alone, rather than "[…] внѣшняя оболочка мысли, способъ выраженія ея, слова, буквы […]" (Imperatorskaja Akademija Nauk'' 1905: II) ("the external membrane of thought, the means of its expression, the words, the letters") – that is, language.[17]

The Memorandum incorporates an extensive report by the expert group. The report adopts a broadly positive view on the linguistic rights of Ukrainian.[18] It provides a comprehensive survey of Ukrainian-language writing, effectively presenting a kind of "history of Ukrainian literature", and even asserts that "въ дѣлѣ демократизма малорусская литература лѣтъ на 50 обогнала великорусскую". (Imperatorskaja Akademija Nauk'' 1905: 4) ("in terms of democratism, Little Russian literature outpaced Great Russian literature by fifty years.")

The Russian linguists should be commended for speaking out in favour of Ukrainian, a stance that is, unfortunately, far less commonly observed among Russian linguists today regarding the Russification of the temporarily occupied Ukrainian territories. Fedor Korš, in particular, was a steadfast supporter of the Ukrainian movement and later criticized Russian liberal Petr Struve, who justified his strong opposition to Ukrainian-language schools by, again, invoking the nineteenth-century notion of a single "All-Russian" language (Struve 1912).[19] By referring to the linguistic situation in the

[17] This point echoes the views of Minister of Education Aleksandr Golovnin, one of the few imperial officials who opposed the Valuev circular in 1863, above all on formal grounds: he supported censorship, but books should be banned "за мысли, в них изложенные, *а не за язык*, на котором писаны, […]" (Golovnin [1863] 2015: 81) ("for the ideas expressed in them, *not for the language* in which they are written, […]").

[18] Mykola Hruševs'kyj ([1916] 2015: 555) later noted with satisfaction that the report "трактує як рівнозначні одиниці нарід 'великорусскій' і 'малорусскій', 'языкъ малорусскій' і 'языкъ великорусскій'" ("treats as equal entities the terms 'Great Russian' and 'Little Russian' peoples, 'Little Russian language' and 'Great Russian language'").

[19] For the sake of balance: both Russian liberals and nationalists strongly opposed the idea of a separate Ukrainian language. A telling example of the latter is Sergej Ščegolev, member of the Kyivan Club of Russian Nationalists and a seasoned bureaucrat in the Kyiv censorship office. In a book denouncing the Ukrainian movement he states: "Всякій книжный малорусскій (украинскій, если хотите) языкъ будетъ, въ зависимости отъ культурнаго словеснаго багажа автора, неизбѣжнымъ ковверканіемъ либо польскаго, либо русскаго языка. Выражаясь вульгарно, такое „кованіе" новыхъ словъ при помощи малорусской фонетики и морфологіи является бездарнѣйшимъ лингвистическимъ плагіатомъ, весьма близкимъ къ семинарской шуточной латыни. Литературный малорусскій языкъ въ прозѣ Кулиша, Старицкаго и въ стихахъ Костомарова, Конисскаго и

Austrian-Hungarian part of Ukraine, Korš effectively demonstrated that the question of a separate Ukrainian standard language was a political question:[20]

> Въ томъ-то и бѣда безусловныхъ проповѣдниковъ московско-петербургскаго «общерусскаго» языка, что подъ бокомъ у россійской Украины, за едва замѣтной чертой австрійскаго рубежа, украинскій языкъ пользуется совершенною самостоятельностью, служитъ орудіемъ не какой-нибудь бытовой, а полной литературы, употребляется для преподаванія всякихъ наукъ не только въ низшихъ, а и въ среднихъ и даже высшихъ училищахъ и все болѣе проникаетъ въ оффиціальный обиходъ. (Korš 1912:46)

> The problem with the unconditional advocates of the Moscow-St. Petersburg "All-Russian" language is that, right next to Russian Ukraine, just across the barely noticeable Austrian border, the Ukrainian language enjoys complete independence, serves as a tool not only for everyday life, but also for a whole body of literature, is used for teaching all kinds of subjects not only in lower, but also in middle and even higher educational institutions, and is increasingly penetrating official usage.

Let us return to the Academy of Science memorandum. Despite the linguists' generally positive stance, the Academy's summary reveals clear traces of the imperial chauvinism that we have seen in many examples. When criticizing the bans for hindering general education in Ukraine, the Academy does not refer to the efforts of Kuliš and others to educate the peasantry in Ukrainian during the 1850s and 1860s. Instead, it argues that the bans

> [Въ настоящее время] […] нарушаютъ интересы сельскаго населенія Малороссіи: распространеніе книгъ духовно-нравственнаго, воспитательнаго, общеобразовательнаго содержанія задерживается отчасти полнымъ незнакомствомъ, отчасти недостаточнымъ знакомствомъ малорусовъ съ великорусскимъ книжнымъ языкомъ. Все это весьма невыгодно отражается на интересахъ всего русскаго народа. (Imperatorskaja Akademija Nauk'' 1905:II)

> […] violate the interests of the rural population of Little Russia [today]: the dissemination of books of spiritual, moral, educational, and general educational content is hindered partly by complete unfamiliarity and partly by insufficient familiarity of Little Russians with the Great Russian literary language. All this has a very negative impact on the interests of the entire Russian people.

другихъ […] былъ пародией русскаго языка." (Ščegolev 1912: 225–26); ("Any literary Little Russian (Ukrainian, if you will) language will, depending on the author's cultural and verbal baggage, inevitably be a distortion of either the Polish or the Russian language. To put it bluntly, such 'coining' of new words with the help of Little Russian phonetics and morphology is the most talentless linguistic plagiarism, very close to seminarian mock Latin. The literary Little Russian language in the prose of Kuliš, Staryckyj, and in the poems of Kostomarov, Konys'kyj, and others [...] was a parody of the Russian language.") On the debates surrounding the Ukrainian language question between 1905 and 1916, see Danylenko (2017).

[20] Korš anticipates the famous formula attributed to Ukrainian writer and politician Volodymyr Vynnyčenko, "Російська демократія закінчується там, де починається українське питання" ("Russian democracy ends where the Ukrainian question begins"): "[…] многіе изъ нашихъ либераловъ, готовые всегда заступиться за права любой не-русской народности въ Россійскомъ государствѣ, словно не могутъ признать такія же права за народностью украинской, малорусской." (Korš 1912:47) ("[…] many of our liberals, who are always ready to defend the rights of any non-Russian nationality in the Russian state, seem unable to recognise the same rights for the Ukrainian, Little Russian nationality.")

6. A Ukrainian perspective

To counter the predominant Russian perspective, I would like to bring in some examples of the Ukrainian view on Ukrainian, going back to the *Osnova* journal.[21]

In the penultimate volume of the journal, teacher at a Sunday school Oleksandr Stojanov published an article entitled "Untruthfulness and indifference are the major obstacles to the spread of literacy". He responded to accusations against the Ukrainian movement concerning the language of instruction in schools. Stojanov reported that he had actually attempted to teach the children in Russian, but concluded that he "долженъ былъ навсегда отказаться отъ подобнаго нелѣпаго педагогическаго опыта" ("had to abandon this ill-advised pedagogical experiment for good"), maintaining that at least initial teaching must be taught "*на понятномъ, родномъ для него, языкѣ*" (Stojanov 1862: 77, italics in the original) ("*in a language that is understandable and familiar* [to the pupil]"). Interestingly, he added:

> Никто не отвергаетъ великорусскаго языка (это было бы такъ же нелѣпо, какъ и *исключительно* навязывать его), такъ точно, какъ не отвергаетъ всякаго другаго языка, какъ средства для знанія и развитія. (Stojanov 1862:77, italics in the original)

> No one rejects the Great Russian language (that would be as absurd as imposing it *exclusively*), just as no one rejects any other language as a means of knowledge and development.

Similar views transpire elsewhere in the *Osnova* debates. A case in point is Ukrainian writer Oleksandr Konys'kyj, who states in the first issue of the journal:

> Українська мова годитця не для одніхъ віршівъ; на ій и теперъ можна говорити й писати *про все наше*, такъ-таки, якъ и на иншихъ. Такъ собі думаючи, пишу до васъ первиі вісті по-нашому; може, на мій листъ обізвутця зъ другихъ сторонъ розумніши люде и придатніше напишуть. Оттакъ, по-троху, по-троху, та й дійдемъ до того, що про все писатимемъ по-українськи. […] (Perexodovec [Konys'kyj] 1861:319; italics in the original)

> The Ukrainian language is not only appropriate for verses; one can speak and talk in *it about all our affairs*, as in any other language. With this in mind, I am sending you the first news in our language; maybe, wiser people will react to my letter from other regions and write more appropriately. This is how we will increasingly reach the point when we will write about everything in Ukrainian. […]

This pragmatic vision of a gradual, collaborative move toward a Ukrainian standard language recurs in various forms throughout the two-year run of *Osnova*. In conclusion, I will present just three examples.

In the journal's first issue, Pantelejmon Kuliš announced his ongoing work on a Ukrainian dictionary. He marveled at the steady influx of "new words" appearing in

[21] In discussing the Ukrainian take on Ukrainian, I limit myself to the historical perspective and a few examples from *Osnova*, where the immediate context is the relationship between Ukrainian and Russian and the role and status of Ukrainian as a literary/standard language. There is, of course, much more to be said on the meta-discourse on Ukrainian as it develops into a modern standard and later state language of Ukraine.

print and in the spoken vernacular, and hesitated to publish a dictionary of a language still in flux. At the same time, he urged others engaged in similar efforts to share their word collections with him (Kuliš 1861a: 333–334).

In the April 1861 issue, the editors published the first chapter of Kuliš's *History of Ukraine*. Again, we learn that the author was hesitant to publish a work in progress that was not complete "ни въ литературномъ, ни въ ученомъ отношеніи" ("neither in literary nor in scholarly terms"), but the editors wanted to show "въ какой степени языкъ украинскій способенъ къ строгому научному изложенію столь-важнаго предмета, какъ исторія" (Kuliš 1861b:79) ("the extent to which the Ukrainian language is capable of a rigorous scientific exposition of such an important subject as history").

Finally, in the same issue, the editors report a constant flow of incoming texts from all corners of Ukraine, and beyond. They signal a generous linguistic policy, provided that the authors write in the manner "spoken by the people" about this or that particular matter:

> Наша Україньска мова, якъ и самі, здорові, знаете, мае въ собі велику вагу и силу; все, що перейшло черезъ серце и розумъ незлічимоі семьі, котра зъ давніхъ-давенъ жила и живе на нашій Україні широкій, – все одзначалось въ нашій рідній мові […] Ми, боронь Боже, не думаемо проводить дорогу гостю тісними дверима, якъ и зпершу въ «Основі» сказано; нехай коженъ добрий чоловікъ пише якъ уподобавъ и змалку наслухався; тільки треба пильноі уваги – чи такъ же якъ-разъ веде народъ річъ въ тімъ случаі, який хочемо повістити. (Od'' redakciji 1861: 31–32)

> Our Ukrainian language, as you, healthy people, know well, carries in it great weight and power; everything that has passed through the hearts and minds of countless families who have lived and continue to live in our vast Ukraine since time immemorial has been recorded in our native language. […] We do not intend, God forbid, to lead our guests through narrow doors, as was initially stated in *Osnova*; let every good man write as he pleases and as he has heard since childhood; only careful attention is needed – whether the people are speaking this way in the case we want to report.

This is a very pragmatic, slightly pluralistic and also emphatically non-hierarchical conception of a Ukrainian standard language in the making. It took over from a more "precarious ambiguity", to use a phrase by Taras Koznarsky (2017:15), in negotiating Ukrainian language and identity in the first half of the nineteenth century.

Even before the nineteenth century, we see a sustained "performative" display of Ukrainian; traceable at least to Ivan Kotljarevskyj, whose *Aeneid* is "dressed" in Ukrainian (as the title page has it), *showing* that a Ukrainian literary language grounded in the vernacular did indeed exist. Throughout the nineteenth century, amid debates over the status of Ukrainian, intellectuals and writers reinforced its legitimacy – and advanced its development – by simply using it, often with notable linguistic variation. In doing so, they proved Vasyl Bilozerskyj right: "life itself resolved [the question of Ukrainian] in the affirmative" (Bilozerskyj [Belozerskij] 1861: 2–3).

7. Concluding remarks

The material examined in this article suggests that the differences between Ukrainian and Russian extend far beyond questions of linguistic structure and into the realm of what may be termed *language cultures*. The analysis covers only one of several dimensions of the language cultures of Ukrainian and Russian, but the results nevertheless allow us to draw some preliminary conclusions. On the Russian side, we observe a persistent tendency to subsume, redefine, or delegitimize Ukrainian, grounded in an imperial tradition that treats language as an instrument of political control and cultural hierarchy. This tradition manifests itself both historically and in current policies as a belief in the efficacy of top-down linguistic intervention and in the authority to define the linguistic reality of others. (Several of these characteristics are also mirrored in the language policy of The Russian Federation within Russia itself, a topic that, however, exceeds the limits of this article. Suffice it to mention one telling example: the recently published prescriptive and strongly ideologized dictionary of "the Russian state language" (Čentemirov 2025).)

By contrast, Ukrainian language culture emerges as fundamentally performative, pluralistic, and practice-oriented, grounded in use rather than prescription and in inclusion rather than exclusion. Of course, there is nuance to add to this picture. For sure, there are examples of purists and purism in Ukraine as in any other linguistic community. As the debates in *Osnova* illustrate, however, Ukrainian intellectuals tended to approach language not as an object to be regulated, but as a shared cultural practice to be developed gradually through use, negotiation, and cooperation.[22] Their readiness to accept variation, their emphasis on intelligibility and communicative function, and their insistence on the legitimacy of Ukrainian across all domains – from elementary education to scientific discourse – reflect a non-hierarchical understanding of language that stands in sharp contrast to imperial models.

[22] While these remarks are based on the historical perspective on Ukrainian discussed in this article, more recent developments in Ukrainian language culture reveal similar dynamics and reinforce the same overall pattern.



Figure 1: A selection of Ukrainian primers 1857–61. Authors: Il'ja Derkač, Taras Ševčenko, Mykola Hatcuk, Pantelejmon Kuliš, Kalenyk Šejkovskyj, Leonid Jaščenko

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Peer-reviewed article

A Heterotopia in a Space-Time Warp: (Re)programming Popular Memory in Two Russian Films about Svalbard

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For Tore Nesset, an intrepid polar dweller and Svalbard travelling companion

Abstract

The article analyses two films by Mikhail Malakhov Jr., *Poljarnyj meridian* (2017) and *Arxipelag* (2021), about the Russo-Swedish Arc-of-Meridian expedition to Svalbard in 1898-1902. The theoretical framework blends the heterotopical and heterochronic approach à la Foucault with the cultural memory discourse, represented by, among others, Rosenstone, Cento Bull & Hansen and Wijermars. An attempt is made to find out how and why the films, to a different degree, misrepresent both the expedition itself and the commemorative journeys that retraced it in 2014 and 2016.

1. Heterotopia and Plausibility

Heterotopia is a term originally coined by Foucault (1984: 49) to describe sites that are at once illusory and actual, same but different, "lieux sans lieux". In film studies, it has come to signify a place that is "created out of real but incompatible spaces and existing outside the normal political, cultural, or even physical order" (Mazierska 2012: 501). Financial and/or logistical considerations in the filmmaking process often lead to one location standing in for another, such as, for example, Ireland representing Scotland in many scenes from *Braveheart* (USA 1995, dir. Mel Gibson), a heroic adventure set in the thirteen century AD and displaying "a complete disregard for historical context"

(Ewan 1995: 1220). Should anyone be surprised that films about Svalbard (sometimes referred to as Spitsbergen), a spectacular yet remote Norwegian archipelago with a sparse infrastructure, are not always shot on Svalbard, sacrificing authenticity for the sake of cost-saving measures and safety regulations?

A multiple viewing of Norwegian, Dutch, French, Czech, Polish and Soviet/Russian moving pictures about Svalbard (several dozen overall, made since the 1930s) demonstrates that, as a rule, documentaries tend to be filmed on the archipelago, while fiction films do not.[1] The small size of documentary film crews, as well as the expectations of verisimilitude strongly associated with the documentary film genre, account for this tendency. However, a habitual suspension of disbelief, necessary to become immersed in a fiction film's screenplay, makes palatable the absence of genuine Svalbard visuals in an invented or semi-fictional story about the archipelago – especially for those viewers who have never set foot there.

It would be interesting to compare and contrast a documentary and a fictionalised film treatment of the same real-life events that took place on Svalbard in a not so distant past, to ascertain which role (if any) an authentic location may play with regard to cinematic plausibility (understood here according to Hitchcock, as a property more common among documentaries than fiction films[2], partly owing to the use of authentic – i.e. not imitated – locations[3]). Such an opportunity presents itself in the form of two cinematic versions of the Russo-Swedish Arc-of-Meridian expedition (1898-1902), filmed by the same director, Mikhail Malakhov Jr, first as a documentary called *Poljarnyj meridian* (Polar Meridian, 2017) and later as a science thriller titled *Arxipelag* (Archipelago, 2021; co-directed with Aleksej Tel'nov).

2. The original Russo-Swedish and the commemorative Russian Arc-of-Meridian expeditions

The Russo-Swedish Arc-of-Meridian expedition to Svalbard was organized at the turn of the XX century to measure sections of the meridian curve "as far north as possible", in order to "more clearly reveal the flattening of the Earth toward the North Pole" (Liljequist 1993: 334), hypothetical at that stage. To accomplish this, over two dozen beacons had to be erected on Svalbard's mountain plateaus, from Little Slate Island in the north to Mt Keilhau in the south, within eyesight from one another. The region's remoteness, difficult ice conditions and unpredictable bouts of bad weather (even in

[1] It has to be said, however, that in some fiction films it is Svalbard that stands in for other parts of the world, e.g. Greenland in *Na białym szlaku* (Poland 1962, dir. Jarosław Brzozowski and Andrzej Wróbel) and *Kjærlighetens kjøtere* (Norway 1995, dir. Hans Petter Moland).

[2] Cf.: "if you're going to analyze everything in terms of plausibility or credibility, then no fiction script can stand up to that approach, and you wind up doing a documentary" (Truffaut 1969: 109).

[3] Cf.: "In the documentary the basic material has been created by God, whereas in the fiction film the director is the god, he must create life" (Truffaut 1969: 110).

summertime) made this a logistically challenging and expensive enterprise, only affordable and achievable if the expedition costs and tasks were split. The Swedish project initiators (whose arc-measurement plans had been first tried out in the early to mid-1860s) chose to team up with their Russian colleagues, partly because of the two countries' prior successful scientific collaboration and mutual geographical proximity to Svalbard (Sweden was then in a union with Norway), partly because Russian geodesists had the necessary training – and partly because Johan Oskar Backlund, head of St Petersburg's Pulkovo astronomical observatory, where much of the required expertise concentrated, was Swedish.

It took the joint expedition longer than expected to complete the beacons' installation and the corresponding measurements, with the initial and additional funding secured thanks in particular to the royal patronage on both sides (by Crown Prince Gustaf and HRH Konstantin Konstantinovich respectively). The northern section of the beacon row, from Little Slate Island to Mt Chernishev (Tsjernysjovfjellet in Norwegian), came under the Swedish responsibility, while the southern section, from Mt Chernishev to Mt Keilhau, was taken care of by the Russians (see **Fig. 1** in the Appendix). Both parties overwintered only once, in the 1899-1900 season, in two different camps. The Russians managed to finish their part of the mission in three summer seasons (1899-1901), while the Swedes – who had tougher weather and terrain conditions to negotiate – needed five seasons overall, counting the initial reconnaisance trip (1898-1902). A further decade and a half had passed until most of the expedition's multivolume and multilingual proceedings were published (for more on the Russo-Swedish Arc-of-Meridian project, see e.g. Liljequist 1993; Wråkberg 2002; and Shabalina and Kazakova 2022).

Over a hundred years later, this formidable scientific exploit inspired two commemorative expeditions under the aegis of the Rjazan' branch of the Russian Geographical Society. The expeditions were organised and led by the Rjazan' dweller Mikhail Malakhov, an experienced polar traveller and physician. Together with a small cohort of like-minded adventurers, he set out to retrace the Arc-of-Meridian itinerary and revisit all the beacons in both Russian and Swedish sections of the enterprise. Climate change notwithstanding, the ice conditions on Svalbard did not allow Malakhov to fulfil his objective in one go, in summer 2014, and he and some of his team had to come back two years later. Both expeditions were filmed by his son Mikhail Malakhov Jr to eventually form the *Poljarnyj meridian* documentary (Innoko Films, Russia, 2017).

3. Poljarnyj meridian (2017)

The documentary alternates the footage of Malakhov's expedition with animation sequences that portray the original expedition through the eyes of one of its key

participants, the astronomer Aleksandr Vasil'ev (1868-1947). Vasil'ev's memoirs (1915) served the Malakhovs as the principal source of information about the Arc-of-Meridian venture. A useful book, it suffers, however, from the occassional attempt at self-aggrandizement, at the expense of the Swedish contribution to the venture's success.

Thus, speaking on behalf of the Russian expedition team, Vasil'ev (1915: 10-11, 61, 82, 128) states that the tasks assigned to it were the hardest to accomplish; that it found the necessity to follow the initial Swedish lead a burden; that prefabricated Swedish metal beacons (unlike Russian cairns, built from locally found stones) proved unsuitable for Svalbard's weather (which delayed the project delivery for the Swedish side); and that after 1900, Russians began dominating the expedition-related decision-making process. In fact, as specified in a recent Norwegian re-examination of the Arc-of-Meridian efforts, "there is nothing to suggest that the quality of Swedish and Russian work differs from each other" (Arlov and Reymert 2020: 22).[4]

Besides, according to Vasil'ev, the Russian unit did its work on Svalbard (which did not formally belong to any particular nation until 1920, when it became Norwegian) "for their country's honour" (1915: 2), rather than in the name of science. Raising the Russian imperial flag on Mt Chernishev, at the point where the Swedish and the Russian beacon rows come together (see **Fig. 1**), is meant to provide an emotional and ideological highlight of Vasil'ev's narrative (1915: 110; see also pp. 103 and 119).

It is precisely this flag, made of metal for durability, that Malakhov's team aims to find more than a hundred years after it had been erected – and successfully does so at the end of the documentary. However, anyone who was able to read a full Russian-language account of the 2014 expedition on Malakhov's personal website m-malakhov.com (now defunct), would discover that the flag location was actually visited one of the first, not last (see the Appendix for **Fig. 2**, in which Stage 1 of the journey is marked in blue). The difference was clearly necessitated in order to generate a dramatic onscreen climax for the commemorative expedition's pursuits, yet those aware of Malakhov's actual itinerary may find themselves observing a kind of time warp. This

[4] All translations are mine, unless otherwise stated.

observation also confirms yet again (if any additional proof were required) that the word "documentary" does not automatically mean "factually accurate".

Other instances of time warp-inflicted inaccuracies involve the film's assertion that after the establishment of Norwegian sovereignty over Svalbard in the 1920 treaty, "the USSR as an heir to the Russian Empire retained the right to exercise economic activity" on the archipelago. The problem with this utterance is that before 1920 Svalbard was a poorly regulated no man's land where economic activity could be engaged in by just about anyone with the will and means to do so, irrespective of nationality. Only in 1935 did the USSR formally join the Svalbard Treaty, which permits its signatories to carry out economic activity on the archipelago under the Norwegian jurisdiction.

A significant share of *Poljarnyj meridian*'s inaccuracies can also be attributed to heterotopia. Although shot for the most part on the archipelago, a comparison of the expedition's real route with what the audience is shown and told on screen, sometimes results in a cognitive dissonance. For example, as the documentary's narrative would have us believe, after visiting Longyearbyen, Barentsburg, Grumant and Pyramiden, the yacht Prolific (which carries the commemorative expedition) allegedly sails north to Ny-Ålesund, whereas in fact it went south towards Sørkappøya. Then suddenly the expedition examines the Arc-of-Meridian beacon on Kapp Lee (Edgeøya), which is hundreds of miles away on the diagonally opposite side southeastward from Ny-Ålesund, across land and water.

It is obvious that such a confusing representation of Svalbard is a byproduct of Malakhov Jr's desire to cram several commemorative journeys into one shortish narrative (*Poljarnyj meridian* lasts only forty-four minutes). Thus, a time warp (or a heterochrony, in Foucault's parlance) begets a heterotopia.[5] Yet the film's limitations of length are not the only reason for spatial disorientation here. To promote a questionable claim that Svalbard had been discovered and lived upon by the Russian Pomors before Willem Barents's well-documented sighting of the archipelago and naming it Spitsbergen in 1596,[6] *Poljarnyj meridian* repeats the antiquated legend that Svalbard's pre-Barents appellation was "Svjatye russkie ostrova", or Holy Russian Islands. Actually, this (distorted) placename has nothing to do with Svalbard and derives from

[5] Cf. "Heterotopias are most often linked to segments of time — that is to say, they open onto what could be called, by pure symmetry, heterochronies" (Foucault 1984: 48).
[6] For a summary of the claim, see e.g. Zinger 2014: 14, 100-16; for a summary of counterclaims, see e.g. Arlov 2003: 53-54.

the Norwegian islands of Sandøya and Røst, mislabelled on Mercator's 1569 map of the world as Santi and Rustene (see Čekin 2020).

Poljarnyj meridian strives to emphasize a continuity of the Russian presence on Svalbard from medieval times to the present day using the Arc-of-Meridian story as an example. This geopolitical subtext, however, is partially obscured and partially compensated for by the stunning visuals of Svalbard's spectacular land- and seascapes, as well as its rich wildlife exemplified on screen by Arctic foxes, reindeer, walruses, little auks and polar bears, all filmed from a reasonably close distance.

4. *Arxipelag* (2021)

Alas, Svalbard *per se* does not feature in Malakhov Jr's fiction film version of the Arc-of-Meridian tale. His 2021 *Arxipelag* (100 minutes; co-directed with Aleksej Tel'nov, head of the LenDok studio specializing in documentaries but occasionally branching out into fiction films) was made in the Gulf of Finland (see Snegirev 2021), i.e. not anywhere near Svalbard, and confined to a considerably flatter coast- and skyline. As a consequence, not much visual respite is available to counterbalance the film's dominant geopolitical agenda, centering on the battle of various states for the yet unclaimed portions of the Arctic.

Obviously concerned that watching how the meridian curve is measured will not guarantee a mesmerizing experience for the viewer, Malakhov Jr and his co-scriptwriter Svetlana Salikova dramatize the plot with a number of action flick clichés – such as love interest, drug addiction, mysterious instances of sabotage and a precious stone hunt – which have little if any relation to reality and do not add up. The love interest has Vasil'ev (played by Dmitrij Palamarčuk) torn between Daša (Tat'jana Čerdynceva), the daughter of his boss the geologist Feodosij Černyšev (after whom the above-mentioned Svalbard mountain is named; Černyšev's part is played by Vladimir Steklov) – and the French journalist Liliane (Marina Petrenko). While Daša remains in St Petersburg, Liliane comes to the Arc-of-Meridian Russian camp on foot, apparently trekking from the Swedish camp nearby (in truth, the Swedish camp was located in Sorgfjorden, more than three hundred miles to the north from the Russian base in Hornsund, as the crow flies; walking such a distance on one's own, through a desolate and dangerous wilderness in poor visibility, was completely unthinkable).

Liliane is said to be the last person who interviewed the Swedish engineer S. A. Andrée before his ill-fated 1897 attempt to reach the North Pole in an air balloon, with Svalbard as a departing point. According to the script, she also visited the place where Andrée and his companions died, looking for Andrée's diary and the diamond that he

allegedly took with him for luck – but she failed to find any. (Actually, Andrée's last abode happened to be on Kvitøya, or White Island, over three hundred miles towards north-east from Hornsund; this was not discovered until 1930, though.)

It does not take a polar historian to guess that Liliane could not have possibly existed. She has been invented by the scriptwriters without any pretence to plausibility. Although in XIX century women did very occasionally take part in scientific expeditions to Svalbard (suffice it to mention Léonie d'Aunet, who accompanied her boyfriend, the painter Francois-Auguste Biard, on board the *La Recherche* vessel in the late 1830s), the Russo-Swedish Arc-of-Meridian project was an exclusively all-male affair. To explain the anomaly of Liliane's presence on Svalbard, women's fight for equal rights is invoked. Liliane says that voting rights for women have recently been introduced in France. This in fact did not occur until 1944. It is hard to avoid an impression that the Arc-of-Meridian expedition has been placed by *Arxipelag* in a temporal and spatial fantasy warp.

This impression is further augmented by *Arxipelag*'s claim that the Russian Arc-of-Meridian base is reusing the Svalbard site where Lieutenant Nemtinov's sailors set camp in 1764 and Brigadier Čičagov landed in 1766. In truth, the mid-XVIII century Russian overwintering camp was constructed in an altogether different place, in Bellsund, over fifty-five miles away from Hornsund. Yet Malakhov Jr and Tel'nov tamper with the historical reality because they wish to illustrate that Russians have been coming to the same Svalbard location for centuries. A stone-made Pomor idol at the entrance to the cinematic Arc-of-Meridian Russian base serves a similar purpose, too, providing a visual reference to the already mentioned and widely shared Russian belief that Pomors' presence on Svalbard pre-dates Barents.

It is not enough for *Arxipelag* to try and foster in the filmgoer the notion of Svalbard as an intrinsically Russian territory that should perhaps at some point be reclaimed, in the "Svalbard naš" / "Svalbard is ours" mode, likely motivated by the "Krymnaš" / "Crimea is ours" meme that emerged after the 2014 Russian annexation of the Crimean peninsula. The audience quickly discovers that the Russian cutting-edge scientific mission on Svalbard is in jeopardy. The film portrays a secret agent of an unnamed German-speaking foreign power, tasked with disrupting the Russian work on the Arc-of-Meridian calculations, for reasons that are never clarified. The viewer must assume, I suppose, that it is simply in the nature of some Western states to undermine whatever Russia is doing, so that it does not become too influential on the international arena.[7]

[7] The secret agent's role is played by Igor' Somov. He is Russian but betrays his Motherland and fellow crew members to feed his drug addiction.

5. False memories of Svalbard

Arxipelag is neither the first nor the last grossly imprecise fiction film on a historical topic, and as such should not be taken too seriously. Yet, together with its documentary counterpart *Poljarnyj meridian*, it is symptomatic of how history is sometimes represented on screen both in Russia and elsewhere, and deserves additional contextualization and interpretation.

As Robert A. Rosenstone notes (2001: 50), historical "films are inaccurate. They distort the past. They fictionalize, trivialize and romanticize people, events and movements". This rule extends to documentaries, too, if they belong to one of the two mainstream subgenres of historical film: film as drama and film as document. Both are "linked by [the] notion of the screen as a window onto a realistic world" and "a linear story that is unproblematic and uncontested in its view of what happened and why" (Rosenstone 2001: 54, 56). From this standpoint, *Poljarnyj meridian* and *Arxipelag* can be seen as manifestations of a two-pronged strategy, chasing different audience segments in order to maximize the viewing figures for Malakhov Jr and Tel'nov's reenactments of the Arc-of-Meridian expedition.

Poljarnyj meridian has been screened at the regional branches of its sponsor, the Russian Geographical Society (see e.g. Regional'nyj lektorij 2024). *Arxipelag* first made an appearance at several film festivals (garnering prizes at, among others, a Northern Character festival in Murmansk and an all-Russia Shukshin festival in Barnaul/Srostki). After its underwhelming performance at the box office *Arxipelag* also featured on TV, including the Naš kinopokaz and Xit channels. In line with other countries (see e.g. Kaes 1992: x), Russian fiction films, especially if shown on television, reach a wider public than many documentaries.

Cinema has a powerful ability "to influence perceptions and mould opinions" (Kaes 1992: xi), which can be used by political authorities to advance a specific agenda. The nation's past in a screen format therefore often represents an attempt at manipulating the public mood, rather than merely informing people about a particular historical event. According to Naomi Greene (1999: 10), under such conditions, "whatever the stance a film takes toward the past, […] it is a stance that sheds light on the present". If, like in Putin's Russia, the main goal of governmental memory politics is "the restoration of national pride" (Wijermars 2019: 6), then film and television together – being highly efficient "for the transmission of historical and political myths" (Greene 1999: 4) and thus the media in which Russian "state efforts to control public opinion are most pronounced" (Wijermars 2019: 3) – are routinely engaged, to borrow a phrase from Foucault (1975: 25), in "reprogramming popular memory […], so people are shown not what they were but what they must remember having been".

The official memory politics is never a unidirectional top-down process. It coopts grassroot initiatives in the same way that demand generates supply. Malakhov Jr, a professionally trained filmmaker with a degree from the Gerasimov Institute of Cinematography, got involved in the Russian memory politics by virtue of joining, as a videorecordist, his father's commemorative expeditions to Svalbard, undertaken as part of a fashionable trend of collectively visiting sites of someone's historic deed, be it war efforts or polar travels, to give vent and boost to patriotic sentiments (see e.g. Istoriko-memorial'naja 2015; Vserossijskaja 2020; and Po sledam 2022).

An extra emphasis on "archives" and Vasil'ev's "diary" as Malakhov Jr's sources about the Arc-of-Meridian expedition (see Bloxin 2017 and Xaknazarov 2021), while only Vasil'ev's memoirs (a somewhat less reliable genre) appear to have got used, indicate Malakhov's intention to proceed, as it were, "from archive to canon" (Wijermars 2019: 21). His desire to let as many people as possible know, through cinematic means, about the Arc-of-Meridian remarkable undertaking has led to overselling it by grossly exaggerating what was actually accomplished, in both the documentary and (especially) the fiction film version of the events.

Thus, *Poljarnyj meridian* claims that the commemorative expedition visited "forty-two geodetic milestones", allegedly established by the original expedition – which is almost twice as many as there had really been (twenty-six in total). For its part, *Arxipelag* features expedition members' violent disagreements over the sudden need to overwinter, apparently caused by the difficulties of finding a place where the Swedish beacons can be seen from (in fact, the decision to overwinter in 1899-1900 had been made well in advance). Some Russian crew members are so unhappy about the idea that they burn down the dog kennel with some dogs in it (to try and abort the mission prematurely), and then proceed to killing one another over the argument whether the mission should continue. None of this, of course, ever happened. Yet, as Stephen M. Norris (2012: 5) explains with regard to the atmosphere in which Malakhov Jr's two films were made, "remembering the past was not about getting it right; […] [since at least the early 2000s], Russian remembrance used the past as a means of projecting present-day pride" – even though in the case of *Arxipelag*, it remains unclear how much pride can be inspired by the allegedly selfish behaviour of some of the Arc-of-Meridian expedition's Russian members.

Malakhov Jr and his film crew become accomplices in the Kremlin's memory policies because their Arc-of-Meridian project is driven by desire to promote a worthy but marginal narrative by attempting to place it at the centre of the wider public's attention. In this, Malakhov Jr acts as a "memory sponsor" (Wijermars 2019: 23), who has to create a "memory cluster" (Wijermars 2019: 33), or several different media versions of the same historical topic, to increase his chances of success. This is exactly

why he (as the sole principal champion of the cause, who holds the required media skills) employs both the documentary and the fiction film genre devoted to precisely the same subject – a rare occurrence among film directors.[8]

Yet the wish to progress from a documentary to a fictionalised coverage of the Arc-of-Meridian expedition could only materialise with a budget to match. *Poljarnyj meridian* was funded by the Russian Geographical Society, but the means at the Society's disposal fell short of the amount necessary for the fiction film (even though some Society contribution to the making of *Arxipelag* did become available). Malakhov Jr and Salikova applied to the Federal Russian Ministry of Culture's financial support for *Arxipelag*, which was duly granted.[9] As Salikova explained in an interview, "we had sought subvention because our film's theme belongs to those that state would subsidise" (Bloxin 2017). This state subsidy changed the status of the Arc-of-Meridian film project from relatively independent to state-aligned. Since 2014, it has been impossible for recipients of state grants for filmmaking to display in their products anything that could be construed by the Kremlin as disloyalty to Russia (see e.g. Kločkova 2014), understood as disagreements with the Kremlin itself.

Not that Malakhov Jr's loyalty to the Kremlin's historical discourse had ever been in doubt to begin with. Wijermars (2019: 4-5) identifies three aspects of contemporary state-driven Russian memory politics: 1) continuity of Russian history; 2) palimpsestic layering ("how contemporary memory culture […] engages with and builds upon previous symbolic practices and their visual, narrative and material traces"); and 3) reclaiming lost traditions of remembrance. All three can be found in both films under review. The alleged Russian presence on Svalbard since the depths of time is a reflection of the first aspect. The second aspect is implemented by repeated references to Vasil'ev's 1915 book serving as the cinematic palimpsest's original layer, providing Malakhov Jr's with the bulk of information about the Arc-of-Meridian expedition, prioritising the expedition's Russian input over the Swedish one and honouring this input with a photograph of the Russian imperial flag hoisted over the archipelago's soil. The third aspect can be seen in the two films said to be rescuing from unjust oblivion the Russian scientists' heroic feat of valour (see Xaknazarov 2021 and Sazonov 2021), and paying tribute to this feat by raising the Russian national flag of today above the same Svalbard location as almost a century and a quarter ago.

Needless to say, flaunting a flag over a certain territory can be interpreted as staking a claim to it. Similarly, erecting cairns on Svalbard can be seen as marking one's own territory (Svalbard was still a *terra nullius* at that point). This process of territorial

[8] Cf.: "Cultural memory has to be actively and repeatedly circulated for a given interpretation of history to gain or maintain dominance" (Wijermars 2019: 29).
[9] Forty million roubles out of the total budget of over sixty million, see Xaknazarov 2021.

acquisition (i.e. making Russia even greater) is repeatedly undermined by the intrigues of an unknown Western power which employs a saboteur among the expedition members. In other words, *Arxipelag* follows a widespread plot formula for filmmaking in Putin's Russia, described by the film critic Daniil Dondurej thus: "foreigners are extremely dangerous, border protection is the chief task" (V poiskax 2006: 5). It seems that in this day and age it is hard to be a Russian filmmaker without cultivating an anti-Western conspiracy theory or two. Given that Malakhov Jr's story is set in the past, it conforms to, assists and advances the Russian government's "strategy of memory politics [which] has aimed to create a continuous narrative of a Great Russia […] that has been under constant threat from domestic and foreign enemies" (Wijermars 2019: 2).

Such a narrative can be classified as an antagonistic mode of remembering, fostered by populist neo-nationalists (just like the Kremlin and its staunch supporters today). According to Cento Bull and Hansen (2016: 391, 393), "the antagonistic mode is linked to the dominance of the territorial nation-state", reimagines "territory in exclusionary terms" and constructs "rigid symbolic boundaries between 'us' and 'them'". The mode "relies on heritage as monumentalism […], as well as a Manichean division of the historical characters into good and evil. It also relies on celebratory, glorifying or nostalgic narrative styles" (Cento Bull and Hansen 2016: 390). It goes without saying that scenes with a flag proudly flying next to a Russian-made cairn on Svalbard, as well as suggestions of a foreign wrongdoing to jeopardise a heroic mission, place the two films by Malakhov Jr firmly within this remembering mode.

6. Conclusion

Malakhov Jr's noble impulse to visualise the story of the Russo-Swedish Arc-of-Meridian expedition for the benefit of wider audiences has fallen victim to a common recipe for Russian cinema's commercial success, available since the late 1990s, namely "merging the past with contemporary patriotism" (Norris 2012: 4) in its nationalist pro-Kremlin variety. While the documentary *Poljarnyj meridian* did not play fast and loose with the facts too much, and was actually filmed on Svalbard, the depiction of the expedition in the fiction film *Archipelag* has done a major disservice to the turn-of-the-century scientific endeavour by associating it with drug abuse, subversive activity, xenophobia, arson and murder.[10] The absence of real Svalbard in *Arxipelag*'s visuals may be explained by budgetary discipline and Covid pandemics, yet it contributes to,

[10] This would have perhaps been less damaging, had access to the genuine story in Russian for the general reader been easier: the 2016 Russian translation of Arlov 2003, which includes an authoritative section devoted to the expedition, has a print run of only 3000 copies and been sold out long since. Other Russophone academic publications on the topic (see e.g. Tret'jakova 2021 and Filippova 2023), as a rule, hold a narrower focus and are even harder to come by.

and is symptomatic of, the overall implausibility of the film. Thus *Arxipelag* becomes yet another Russian/Soviet fiction film about Svalbard that has not been shot on Svalbard (such as Iurii Egorov's 1954 *More studenoe* and Mikhail Kalatozov's 1969 *Krasnaja palatka*; for details, see Rogatchevski 2020). An authentic Russian fiction film about Svalbard is yet to be made.[11]

[11] This article has been written as part of the research project "Memory Politics of the North, 1993-2023" (NORMEMO).

7. Appendix

А. С. Васильевъ. На Шпицбергенъ и по Шпицбергену.

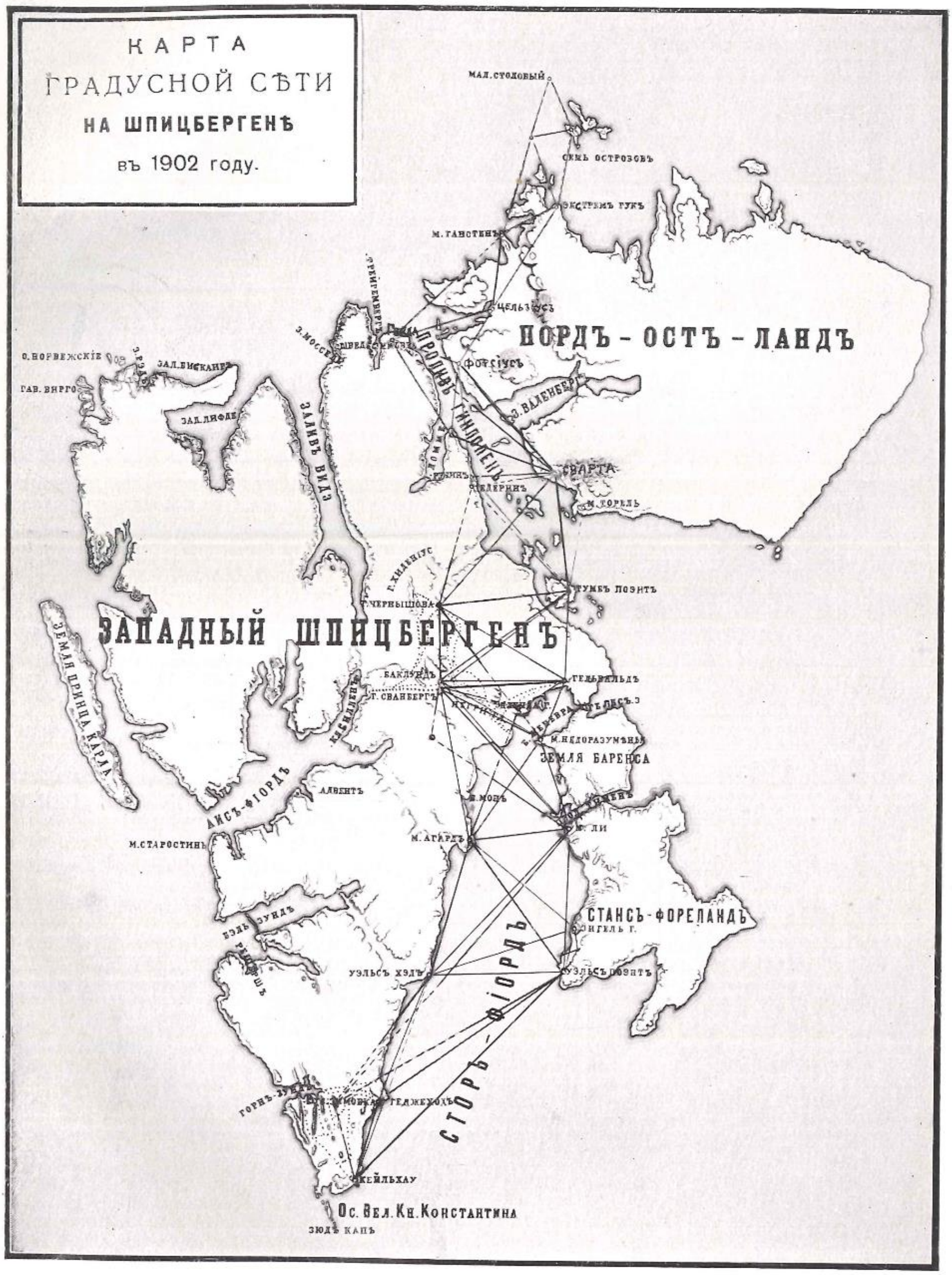


Figure 1. Vasil’ev 1915, an insert between pages 8 and 9

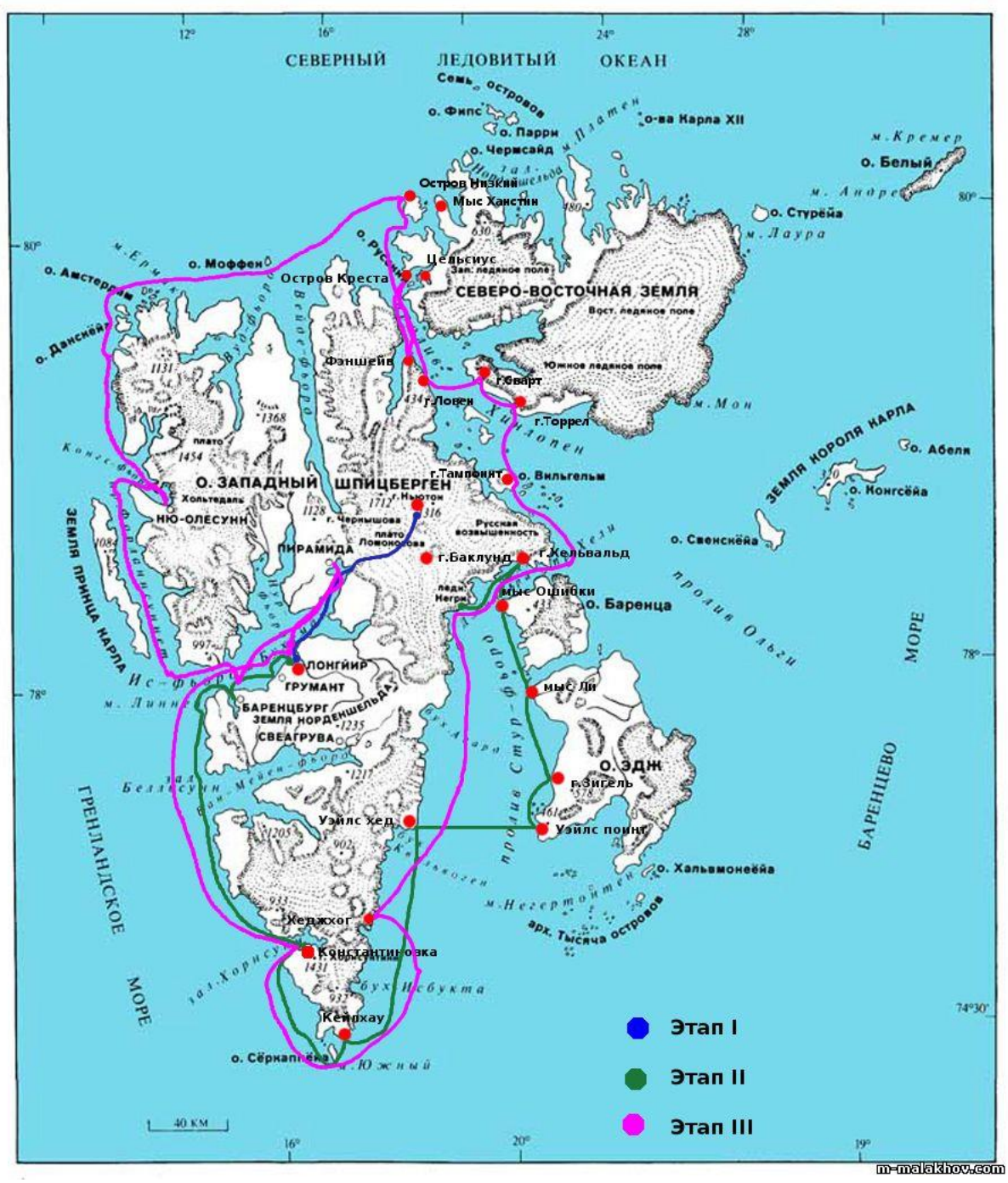


Figure 2. A screenshot from the website m-malakhov.com, now defunct

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ETTER MIKHAIL LERMONTOV

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Ensom går jeg ut på øde stier.
I tåken skinner brosteinene tomt.
Ørknen søker Gud og natten tier.
Bare stjerner snakker, ømt og fromt.

Himmelen er høytidsstemt og herlig.
Jorden hviler i et blåklart skinn.
Hvorfor har min sjel det så besværlig?
Bærer jeg en lengsel i mitt sinn?

Nei, mitt liv er lukket for all lengsel,
Ingen anger gnager nå i kveld.
Alt jeg vil er frihet fra all trengsel.
Sovne vil jeg, glemme helt meg selv.

Men ikke slik: i gravens kalde kjeller.
Nei, sovne vil jeg, sovne slik som nå:
pustende, i slike stjernekvelder,
her, i dette stjerneklare blå

dyp, og gjennom natten høre stemmer
av sang og kjærlighet, et lekent sus
i ørene, og over mine lemmer
den mørke eikens eviggrønne brus.

2015/2024

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